JUNIOR ARTS & ACTIVITIES

CLASSROOM ACTIVITIES FOR THE ELEMENTARY TEACHER

RAIN PROJECTS — GARDENS

VOLUME 22 - NUMBER 3

APRIL
1948
50¢

SOCIAL STUDIES

FOR ALL GRADES

Kindergarten; Grades 1, 2, 3:

SOCIAL STUDIES UNITS FOR THE PRIMARY GRADES

Grades 4, 5, 6, 7, 8:

OUR UNITED STATES

OUR GOOD NEIGHBORS

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Compiled by the editors and artists of *Junior Arts and Activities.*

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YEAR-'ROUND ARTS AND CRAFTS PROJECTS and SONGS FOR EVERY SEASON

Year-'Round Arts and Crafts Projects is the answer to many of your classroom problems: "Where can I get unit suggestions that are vital and helpful?" "What about projects which utilize materials at hand?" "Where can I find new and different ideas for special events and holidays?" — It is an answer that will save your time, your money, and many hours of research.

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SONGS FOR EVERY SEASON

is a brand-new compilation of simple songs for little people—kindergarten and grades 1, 2, and 3.

These songs, which have been reprinted from past issues of *Junior Arts and Activities,* make an excellent addition to your music library. The words are such as young children can understand and enjoy. The rhythm patterns are pronounced and pleasing to children. The melodies are ones that children like to sing and are able to sing.

Each song is complete on one page and the music is clear and easy to read. No extensive musical background is necessary in order to play the simple accompaniments on the piano.

In many cases the rhythm patterns are so pronounced that the children are able to devise arrangements for their rhythm bands.

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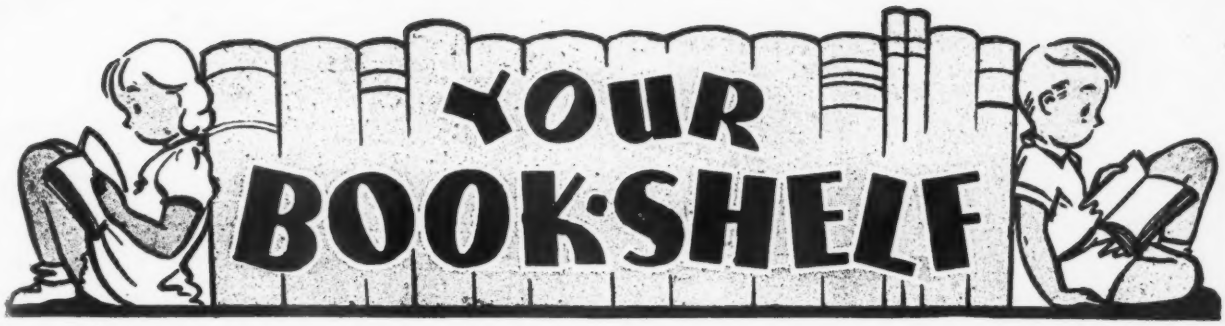

One of the interesting books which has come to hand recently is *Special Plays for Special Days*, by Mildred Hark and Noel McQueen, published at $3.00 by Plays, Inc., 8 Arlington St., Boston 16, Massachusetts. It contains a group of 24 holiday plays intended especially for young people. No royalty need be paid by schools.

The authors have managed to inject the kind of humor children like. And some of it is of the sort that parents will laugh at, too. Here's a sample:

MOTHER EARTH: . . . Oh, if you only would help me.

KING: I'm afraid there's no use your speaking to me, Madam. I'm only the King.

MOTHER EARTH: Only the King? The King of the Fairies? (*Obviously impressed she sinks in a low bow.*) Oh, your majesty, I didn't recognize you.

KING: That's not surprising. No one ever does. No one ever heard of me.

MOTHER EARTH: But I have heard of you, your majesty.

KING: I don't know where. The fairy tale writers all neglect me. Everyone neglects me.

MOTHER EARTH: How can you say that, your majesty, when Shakespeare, one of the greatest writers of all time, put you into his famous play?

KING: What's that?

MOTHER EARTH: Why, yes — he mentions you often.

KING (*Surprised*): Mentions me?

MOTHER EARTH: Of course — in *Midsummer Night's Dream!* Why, you can read all about the King of the Fairies.

KING: You can, eh? Well! (*He sits down on the edge of the throne, shoving the Queen over.*) Move over, my dear.

This sample from *Mother Earth's New Dress*, a play for a spring day, is too brief to do more than give a slight inkling of the clever dialogue. There are plays for Lincoln's and Washington's birthdays, Valentine's and St. Patrick's Day, Easter, Spring, Arbor Day, Mother's Day, Memorial and Flag days, Health Week, as well as Book and Safety weeks, Columbus Day, Halloween, Thanksgiving, Christmas, and New Year's. One important point deserves emphasis—a minimum of sets, properties, and costumes are needed.

The Junior Literary Guild selections for April are as follows: for boys and girls 6, 7, and 8 years of age, *Happy Little Family* by Rebecca Caudill, The John C. Winston Co., $2.00; for boys and girls 9, 10, and 11 years of age, *Melody, Mutton Bone, and Sam* by Lavinia R. Davis, Doubleday & Co., Inc., $2.25; for older girls, 12 to 16 years of age, *Constancia Lona* by Alida Malkus, Doubleday & Co., Inc., $2.50; for older boys, 12 to 16 years of age, *Sancho of the Long, Long Horns* by Allan R. Bosworth, Doubleday & Co., Inc., $2.50.

With this issue we combine "Teachers' Corner" and "Letters"—for the simple reason that we propose to pay for the letters (at the usual $1 rate) whether they contain a helpful hint for other teachers, a hint for the editor, or perhaps even more direct criticism.

TO BRIGHTEN DISPLAYS

It is possible to add a gay touch to black-and-white displays. Penmanship, language, and similar black-and-white displays often seem drab and lacking in eye appeal. Color relief may be added by hanging the papers with small plastic yarn bobbins. These come in many gay colors and are inexpensive. Get them at the local dime store.

Mable C. Olson

COOKIES FOR PARTIES

When my children have simple little parties or entertainments, I always let them make the refreshments. Here is a simple and delicious cooky recipe that even the smallest children can make:

1 14-ounce can of evaporated milk
½ cup peanut butter
1 cup cornflakes

Stir and divide the mixture into two equal parts. To one part add 1 cup of washed and dried raisins and ½ cup of nuts. To the other part add 1½ cups of shredded coconut. Drop by teaspoons onto greased cooky sheet; bake in moderate oven (350 degrees) until brown. Remove to cooling rack immediately.

This recipe makes about 4 dozen cookies.

Katherine Dissinger

DOG BONE EXCHANGE

A dog bone exchange in the classroom helps boys and girls to learn to share what they have with others. The children who do not have pets bring leftover bones to class and give them to those who do have dogs. The following day I let the recipient give an account of the dog's joyful reaction over the bones, and the giver feels he has done a good deed. The few minutes devoted to the dog bone exchange help foster a love of pets and a sense of duty.

Lucille Ketter Abel

STAMP BOOKS

Postage stamp books are inexpensive but welcome gifts for children to make for Mother's Day gifts. Since most children enjoy keeping match-covers, have them bring attractively colored match books and some sheets of waxed paper. Carefully remove the stubs of the matchbook by loosening the wire staples. Use a desk stapling machine to fasten in waxed paper cut to size. The books can be filled with stamps and are nice for mothers to keep in their purses.

Aleva De Long

JUNIOR
ARTS & ACTIVITIES

THE NATIONAL MAGAZINE
FOR THE ELEMENTARY
TEACHER OF TODAY

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Ordered alone *Educational Music Magazine* is $1.50 per year; $4.00 for three years!

Junior Arts and Activities is the new leader in professional magazines for elementary teachers. It is the magazine of plans, projects, activities, and correlations for every elementary teacher—kindergarten through junior high school!

Long hours of research and planning are saved by using *Junior Arts and Activities*. Such regular features as "Free and Inexpensive Materials," "Audio-Visual Aids," "Your Bookshelf," "The Letter Box" give concrete help to teachers! In addition, the sections "Things To Do," "Art, Music and Literature," "Stories and Programs," make special planning easy. Units and projects, arts and crafts, correlating and integrating activities — all of these are provided to help you in your work!

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APRIL CALENDAR

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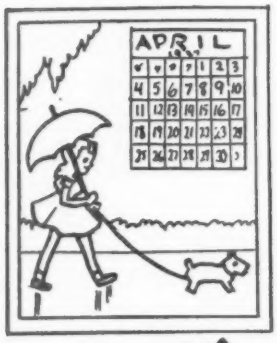
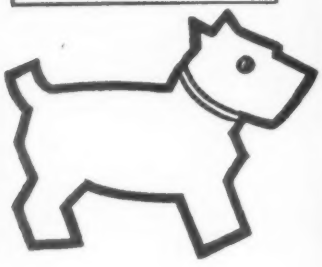




SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Color all the flowers and girl's dress brightly

From the Editor's Desk . . .

Possibly the commonest product of experience in teaching—or in almost any field of endeavor—is the conviction that there are few, if any, *new* problems. We keep running into new aspects of old problems, though, and the fact that a problem may be an old one is cold comfort if we cannot solve it. There is an aspect of this ever-present situation that is encouraging. If the problem is an old, recurrent one, it is likely that others have encountered it and perhaps moved closer to a solution.

In that encouraging fact lies the reason for our professional magazines. Primarily they act as clearing houses of experience. Problems are posed, solutions are suggested, the tremendously varied experience of many others are at our disposal. In essence the journals offer one of the most unselfish forms of professional activity.

Every editor comes to have the deepest respect for the generosity which puts all this experience into a common pool. Perhaps that is because editors see the wheels go round—a letter from a teacher in Iowa tells how much help has come from a suggestion originating in Pennsylvania. Probably the two will never meet in person, but it is a nice feeling to realize that they can meet in the columns of our magazine.

Perhaps this is a long way around to the idea that our columns are open to all and that we appreciate the effort involved in coming to the aid of someone who makes an appeal for help in solving some problem. And there are other ways in which experience can be made available to all. One is to offer suggestions as to what you would like in the way of articles and activities. Or to offer criticism of material that has been presented. At the risk of inviting a shower of brickbats rather than bouquets, this editor admits that the most refreshing help has usually come from direct and plain-spoken criticism.

•

Editing has never been one of the exact sciences. All attempts to reduce the factors involved to a formula have been failures, probably for the reason that the readers remain, to an unfortunately large extent, an unknown quantity. Successful editing rests on a process very much akin to pulse-taking by a physician. In this case, however, the pulse is taken by careful reading of letters.

As you see, this is a request for letters, letters that will enable us to take the pulse of our readers. It will not be entirely a one-sided affair, for in return for your trouble, you will be getting a magazine that comes closer and closer to the kind you need. Your response, once we can detect it, will determine the selection of the published material.

•

It wasn't so long ago that the statisticians were shaking their heads over the population figures. We were going to become a "static" country. If you believe we should be "dynamic," then, of course, the thought of having a static population seemed more than unfortunate, it appeared to have dire consequences. We've never been able to see the dark side of that particular picture though. Perhaps it isn't essential to always be growing. It would be grotesque in an individual, and so Nature has taken care that we don't keep on growing. There is considerable likelihood that a constantly growing nation would be rather monstrous in the end.

Now it appears that the statisticians weren't right. Births reached an all-time high this past year, and as far as schools are concerned, there seems to be no immediate possibility of their reaching a point of declining attendance. All of which goes to prove that it isn't always wise to get exercised over dire predictions.

— Editor

"THE GATHERING OF THE WATERS"

When we see large masses of white clouds, sailing across a blue sky, on a sunny day, we seldom stop to think of rain. If, however, the clouds encounter a stratum of cold air, down comes the rain.

When in the night we wake
and hear the rain
Which on the white bloom of
the orchard falls,
And on the young, green wheat-
blades . . .
Then fancy pictures what the day
will see—
The ducklings paddling in the
puddled lane,
Sheep grazing slowly up the
emerald slope,
Clear bird-notes ringing, and
the droning bee
Among the lilac's bloom.

R. B. Wilson

Water means life to all things; continued drought means death to plants and animals, and even to man. In past ages, death lurked in dirty water holes, and plagues wiped out entire villages; but now, cities, which get their water supply from turbid streams, have purification plants safeguarding the health of men.

Rain comes from the clouds, so the first story to be studied is the one about the sun shining on water and changing it to vapor. The vapor rises and changes into clouds; then the clouds cool and change to rain. When the rain falls to the earth, the water seeks the rivers, lakes, and sea. The difference in the effects of the sun's energy in the latitudes and altitudes of the world, the rotation and revolution of the earth, and the great wind currents cause irregular atmospheric disturbances and a varying rainfall from year to year.

It is a fascinating topic, the tracing of a raindrop's journey. But it must be remembered that its itinerary depends upon the place in which the raindrop reaches the earth, and the time of its arrival. If it happens to fall on a very hot pavement or the shining surface of a lake, it may be drawn right back into the air by evaporation. But if it lands with many others on a hillside, it will flow down to join streams of water which will eventually reach the sea. If there is vegetation, the thirsty roots of plants may drink it up, although by transpiration, it finally escapes as vapor through the spores of the leaves. It may, however, sink down into the earth to reach an underground spring.

Gravity, which pulled the raindrop from the clouds, pulls it still deeper into the ground. If it escapes the rootlets and has free passage through the particles of soil, it meets other crops, and the pressure of the group urges it on with a certain "head." One hundred feet of "head" means the pressure of water one hundred feet below the surface, minus that which might be used up in overcoming friction. How far the raindrop will go depends upon the holes in the soil. Water can percolate through sandy soil readily, but if it strikes a rock it must grope about for a crack through which to escape. This struggle along twisting paths is called friction.

Finally, the holes in the soil are filled to overflowing, for the water from previous rains may have been accumulating for years, even centuries. This accumulated water is called the ground-water, and its top level, the water-table. The ground-water constantly seeks lower levels but is often held back by impervious rock. If this layer of rock is drilled, the water comes up and becomes a "driven" well. Old fashioned wells were made by digging into the ground until water was reached. It was walled in with stones and brought to the surface by a bucket. Then, with pumps, came deeper wells. When digging a well, if a crack or open space in the rock or clay is struck, where water has been imprisoned, it gushes forth and continues flowing. It is called an artesian well. The imprisoned water may reach the surface in a spring, by forcing itself through a faulty portion in the impervious layer. There are some springs that come out of the ground because the soft soil cannot hold any more water.

An underground flow lying open at the upper end to collect water, and then running under the rock which prevents it from either evaporating or escaping, supplies most of man's need for water. The slope from the Rocky Mountains to the Mississippi River is one of the largest underflow areas in the world. The raindrops have fallen far to the west and pushed their way to the southeast under the great plains, only to be drawn up by thousands of wells.

Along the coast, from New York to Florida, is another supply area. After supplying New York and many other large cities, the underground water passes out into the ocean through caverns in the rocks off the coast of Florida; the fresh water bubbles up to the surface in springs many miles out in the salty sea.

Many cities depend upon nearby rivers and lakes for their water supply. Water is now collected in reservoirs, some high up in the hills so the water will be clear and cold. This is an ancient practice, for India, Egypt, and Arabia had dams in the rivers to impound the water. Alexandria had cisterns to catch the flood waters of the Nile, and the Romans built aqueducts to supply water in every country they ruled. The Incas of Peru, in the New World, carried water long distances in stone channels.

Modern engineering has improved ancient methods. In building an aqueduct today, some of the requirements to be considered are, how to pump against the gravity flow, and how to place the pipes in the earth to take advantage of natural features. When the almost human cranes have put the lengths of pipe in place, when gates have regulated the flow, and when such things as valves for the escape of air, the manholes, the meters, and the regulation of pressure are finally adjusted, the water sweeps into the city mains.

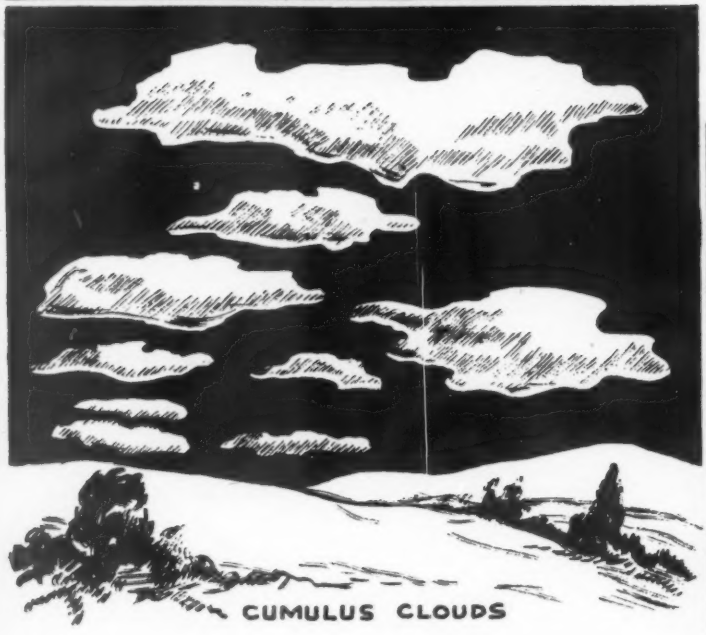
The water in the reservoir does not come to the city dweller just as it fell from the sky or surged up from the ground. Mud, color, taste coming from minerals dissolved, and a disagreeable odor coming from decaying vegetable or animal matter must all be removed

ALTO CUMULUS

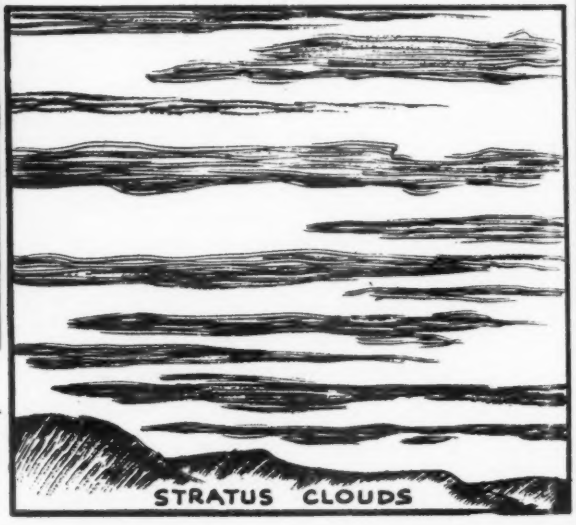
CUMULO-NIMBUS, THE THUNDER HEAD CLOUD

CIRRUS CLOUDS

NIMBUS
OR RAIN CLOUD



CUMULUS CLOUDS



STRATUS CLOUDS

if the water is to be pleasant to use.

Water, as it moves on to a lower level, gathers a great deal of energy, due to its weight and motion. Man has learned to use this energy of the water to help him to do his work.

The Chinese, Egyptians, Norsemen, and Romans had a wheel with an endless rope and buckets dipping down into the water; an animal turned the wheel and lifted the water. Windmills in Holland pumped the water by means of power from the wind. When London became overcrowded and there was a need for more water, England sent to Holland for one of her engineers. Under the arches of London Bridge, this engineer built two paddle wheels which dipped down into the river. The running water in the river pushed the paddles and made the wheel turn, which pumped the water to the highest buildings in London. The water, however, was not pure, and plagues and fever swept the city.

As soon as it was learned that energy produced by wheels depended upon the head of the water, hydraulic engineering was born. Men had always known that steam formed when water was boiled; they did not know that steam, by producing a vacuum, could create power. Late in the seventeenth century, James Watt, by perfecting the experiments of others, found steam could be made to lighten work. He said to his assistant: "It is a great thing to find out what will not do; it leads to finding out what will do."

Almost everything we use today depends upon mechanical power, made available through recent inventions of steam, gas, and electric engines. Mechanical power drives machinery, propels vehicles both on land and sea, and makes the Father of Waters, the Mississippi, give up vast amounts of horsepower, while a power house transmits electricity over a radius of three hundred miles. The modern generator which produces energy is driven by falling water, oil, or coal. The sun, of course, is the great source of all power, but water helps to carry on its work, being in part responsible for both oil and coal.

Eleven million, seven hundred thousand horsepower is developed in the United States alone, but four times this amount of water energy goes back to the sea unused. Less than one-fifth of the electrical power is generated from falling waters in the United States, and if all were used, the saving in coal and oil would be immense. Even if all the water power of the country were developed it would not meet the energy needed in man's work. With increasing demands upon our natural resources, such as coal, oil, and gas, engineers have organized and directed their activities toward curbing the waters. This will provide more fertile lands and lower priced power.

PRIMARY ACTIVITIES:

In primary grades, only simple aspects of the geography of the local community, as it has been changed by rain, should be touched upon. Natural features are found in miniature in any locality where bare earth is exposed to the action of the sun, wind, frost, rain, and running water. Do not introduce abstract ideas, but emphasize certain elements of the child's environment. On such a limited area as the school playground, miniature illustrations may be observed, such as streams, tributaries, a lake after a heavy rain, tiny flood plains, divides, deltas, cliffs, islands, and shore lines. Stress the significance to mankind of such formations, which are to be visualized on a larger scale when the geography of the world is studied. Have them note that houses are built on ridges where drainage is good, and not in areas along streams where floods might occur. They should be shown that soil is finer near the surface where roots and earthworms permeate and pulverize, and that it grades downward to become solid rock.

To explain how rain is formed, boil some water and hold a cold plate above the steam. Bring a pitcher of ice water into a warm room and show why we have dew. To see how drops of water unite to exert pressure, either watch a stream or turn a hose on a sand pile in the school yard to see how water eats away the sides of the banks. See how the stream carries sand, sticks, and pebbles as it travels. Note where they come to rest.

Take a mixture of sand, clay and muck and fill a fruit jar half full. Add water to fill the jar two-thirds full. Shake well and allow the soil to settle. Which layer of the strata has the finest particles? Tie a cloth over the mouths of three lamp chimneys and turn them upside down over a bowl of water; hang each chimney by a string so they will not rest upon the bowl. Dry and pulverize equal amounts of the sand, clay and muck and fill chimneys two-thirds full of each type of soil. Pour a cup of water in each and watch how long it takes for the water to drain through. Which soil drains the fastest? Which soil left the cleanest water in the bowl? Reverse this experiment by allowing the chimneys to project slightly into the water in the bowls. Which soil absorbs the water the fastest?

Place a few seeds in three fruit jars, an equal amount in each. Keep those in jar No. 1 barely moist; in jar No. 2 well watered; and jar No. 3 covered with water. Put a cover on the jars to prevent the escape of moisture. Which seeds grow best? This helps to explain why grain planted in the spring usually sprouts earlier than the grain planted in July, and what sometimes happens to seeds when there is too much rain in the spring. Could we live without rain? What causes the seeds to swell, the buds to bloom?

Make a booklet showing: It is a rainy day—we need umbrellas, rubbers, and raincoats on rainy days. Ducks, frogs, and flowers like rainy days. List the work of the rain: gives us water to drink—washes the earth—cools the air—softens the ground so flowers can grow—turns wheels. Mark the rainy days on the calendar of the month by drawing a tiny umbrella on the date of each rainy day. *Art:* To show that slanting lines give motion to a picture draw a child walking in the rain, holding an umbrella against the wind.

INTERMEDIATE GRADES:

Before taking up regional geography, the child should have a knowledge of local weather conditions, such as the amount of rainfall during the year.

Put some water in an uncovered glass and let it stand several days. Try to wash off the white ring that forms. Look in a teakettle for flat pieces of stony coating found after water has been boiled in it several times. Water can dissolve gases, liquids, and solids. There is a limit to the amount it can dissolve. Add salt slowly to a glass of water. What happens when more is added than the water can hold? Add more salt and heat the water. Watch what happens when the water is heated and then cooled. Mix starch with the water and stir well; let it stand. Does the water dissolve the starch? Things that cannot be dissolved in water are called insoluble. List some soluble and insoluble substances.

Rain water is always soft because it has been in the air and has had no chance to dissolve the lime which hardens it. When in the ground, it has dissolved some of the lime found in soils and rock. Study limestone caves. List cloud formations from which rain comes and learn their weather meanings: *Cumulus*—light and fleecy—fair weather; heavy, with rounded tops and peaks—showers. *Cirrus*—light, feathery and very high—an approaching storm. Composed of ice particles. *Stratus*—low and dark colored—fog. *Nimbus*—dark gray and close to earth—rain. *Cirro-cumulus*—spotted, called a "mackerel" sky. *Cumulo-nimbus* — mountainous thunder clouds.

RAIN MAP
WASHINGTON
MONTANA
N. DAKOTA
MINNESOTA
OREGON
S. DAKOTA
WISCONSIN
MICHIGAN
WYOMING
IDAHO
CALIFORNIA
NEVADA
IOWA
NEBRASKA
ILLINOIS
INDIANA
OHIO
UTAH
COLORADO
MISSOURI
KANSAS
KENTUCKY
W. VIRGINIA
ARIZONA
NEW MEXICO
OKLAHOMA
ARKANSAS
TENNESSEE
MISS.
ALABAMA
GEORGIA
LOUISIANA
TEXAS
FLORIDA
S. CAROLINA
N. CAROLINA
VIRGINIA
MD.
DEL.
N.J.
PENNSYLVANIA
NEW YORK
CONN.
R.I.
MASS.
VER.
N.H.
MAINE
DEPTH of RAINFALL
0 TO 5
5 TO 10
10 TO 20
20 TO 30
30 TO 40
40 TO 50
50 TO 60
OVER 60

ALL ON A RAINY DAY

Three little frogs in a race did hop;
They jumped and jumped and went kerflop.
When it rained they saw an umbrella tall.
It wasn't at all, but they were quite small.
To them the umbrella seemed as big as a tree.
But it was only a mushroom as you can see.

Read the description of each frog and each mushroom. Make a cut-out picture of each, the frogs green and the mushrooms tan, and mount on colored construction paper to make a Spring poster. Look for these frogs and mushrooms outdoors, and beware of the poisonous mushroom!

1. The leopard frog—back green with darker green spots edged with white. He is found around a pool or in a marsh.

2. The spring peeper—tiny green frog with a dark multiplication mark on his back. He begins to sing early in the Spring as he sits on a lily pad.

3. Green frog—bright green head and shoulders with a fold of skin down each side of his back. His ears are purple.

1. Destroying Angel—the most poisonous of all mushrooms. Note the frill around the stem and the cup from which it springs, called the "death cup." It does not grow on wood.

2. Common meadow mushroom—cap whitish, often streaked with brown. The pink gills turn brown later. It also has a collar-like ring. Found on lawns and in meadows, never in woods.

3. Sponge mushroom — found in orchards in the spring, or in the open woods. There are reddish-brown pits in the cap which is quite ridgy.

• HEALTH •

Use this picture of children in the rain as the cover for your health booklet.

On the pages inside, paste the small pictures of summer and winter clothes, listing other articles that you also wear, such as boots, etc., and telling how to dress in cold, hot or rainy weather. Color the boy's raincoat and umbrella and the girls' rain capes in bright, gay colors.

Grand Coulee Dam

The Grand Coulee canyon, with its bottom 600 feet above the ordinary river level, is a wonderful example of the properties of water. Ancient man knew them only in part, but modern engineers have made use of knowledge to bring about the greatest feat ever undertaken. This dam is in a solid granite canyon where the Columbia River, the second largest river in the country, was once diverted from its source. In the days of glaciers, it was forced to cut a new channel while a glacier choked its course temporarily. As the glacier receded, the river returned to its normal channel. Now, engineers have followed the clue of Nature and propose to raise the water level of the river once more to this temporary course.

Parts of the state of Washington are dry and unproductive, though the Columbia River winds through this desert-like portion carrying a large volume of water gathered from melting snows. The river gave no drop of its precious treasure to water orchard or field. It thundered through bare lava rocks in a cavernous gorge until man's genius thought of using twelve powerful pumps regulated by electricity to lift the river into a huge lake, whose basin, the Grand Coulee, was made thousands of years ago. The river now has a dam, reaching two hundred feet down through mud, to granite, and reaching three hundred and fifty feet into the air. Thus, from the old course of the river, a vast reservoir was created, and the dry gorge with its walls twelve hundred feet high was converted into a dam which holds back the fury and volume of the river waters. There will be ten dams between Grand Coulee and the Pacific Ocean before the entire project is completed.

Bonneville Dam is located forty-two miles upstream from Portland, Oregon. It is just below the Cascades of the Columbia, in the gorge where the river has hewed its way through the Cascade Range as it seeks the sea. An inland waterway is now open to transport local products to the Pacific from inland bodies of water, and raw materials from South America and the Far East can be brought in from the ocean. The highest lock in the world can lift an ocean vessel seventy feet over the dam. It is expected that this abundant transportation and the low-priced power will attract other electro-chemical and electro-metallurgical industries to the area.

The Columbia River is free from ice and silt and has small seasonal and annual variation. It has tremendous natural storage, and a drop, in its course through Washington, which carries sufficient water to cover an area the size of Texas to a depth of one foot. It is surrounded by forests and mineral deposits. It is noted for its salmon run. (Read The Story of the Columbia River, Crowell Publishing Co., Springfield, Ohio.) By holding back the water all the way to the Canadian boundary, a constant hoard of water is maintained at the dam. The plan includes power and pumping plants and a distribution system consisting of canals and secondary pumping stations. These irrigation canals carry water from the reservoir down into the West Columbia basin which is arid and waste. It takes water to the Imperial Valley, California, already famous for its irrigation system, and makes even more acres produce.

The initial plans did not call for irrigation. However, it is hoped that eventually 1,200,000 acres will be irrigated by the Grand Coulee Dam, and make it possible for 40,000 farmers to produce grain, on farms ranging in size from ten to eighty acres. No lands are yet available for settlement under the project. The project is based on reports of Army and private engineers, stretching over many years. The tube of steel and concrete will hold a river of thirty-two million horsepower, and the entire Grand Coulee Dam will cost an estimated twenty-five million dollars, more than the cost of the Panama Canal. It is believed that the income, from industrial clients' purchasing power, will eventually cover this expense.

Fear that the Columbia River salmon run would be ruined has produced plans for artificial hatching below the dam.

There are a series of small pools with a regulated flow of water, arranged like steps. There are also locks like those for ships. The salmon swims into the lock, a gate closes, the water rises to the level of the river above the dam, a gate opens in front of him, and out he swims. In case he hesitates, a wooden platform rises automatically beneath him to push him out.

Grand Coulee Dam is three times as large as Boulder Dam in Boulder Canyon of the Colorado River. It will produce more hydro-electric power than all seven dams in the TVA. It is a greater undertaking than the building of the largest pyramids in Egypt, and the water area will be larger than the area of the Nile. Boulder Dam could be placed in one end of it, and an Egyptian pyramid in the other. At each tick of the clock it will raise five hundred tons of water three hundred and twelve feet. The bottom is smooth and cliffs rise on either side; these giant walls of the ditch do not rise abruptly from the river but slope gradually.

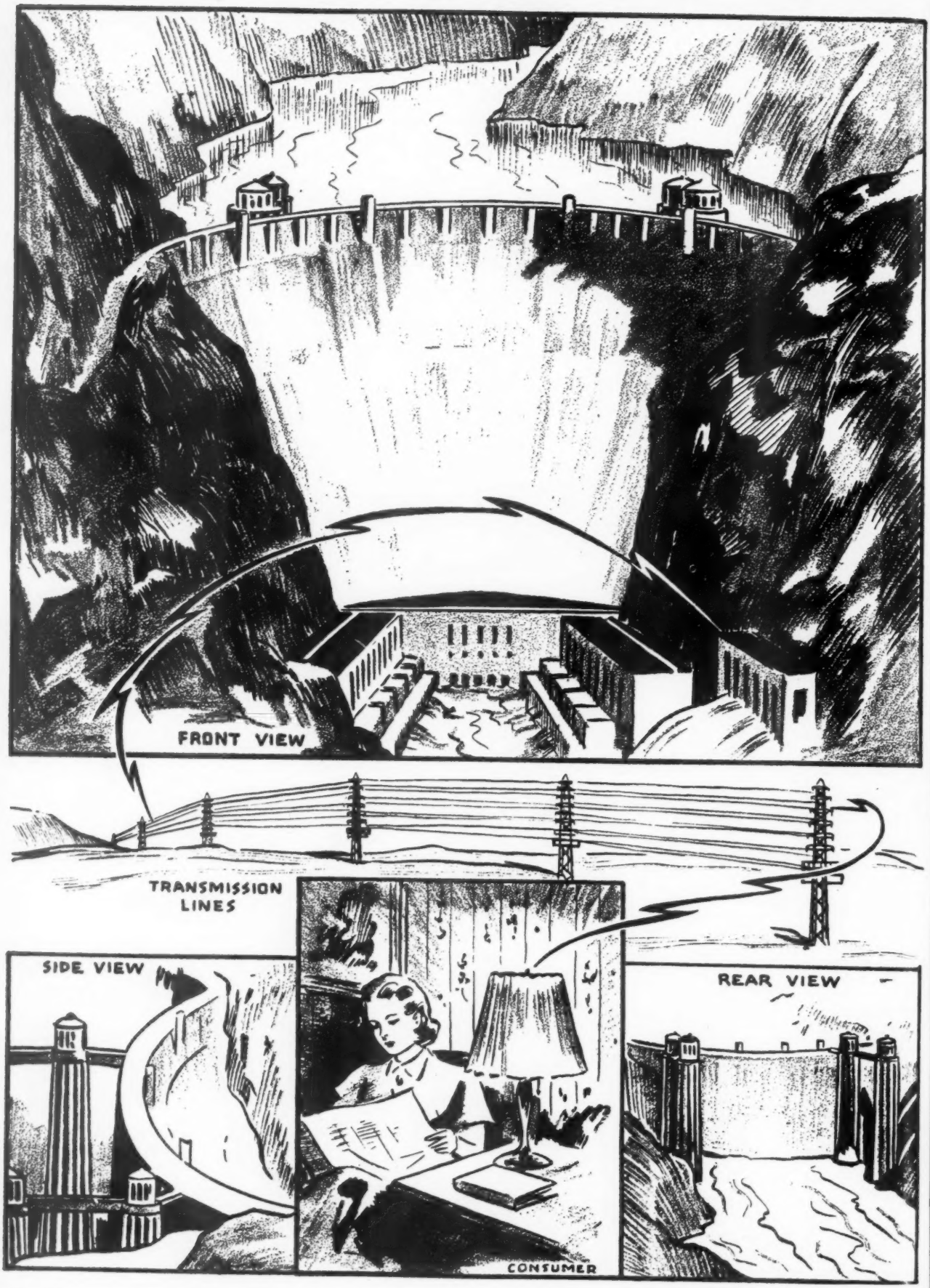
On these sloping sides are the buildings necessary for the carrying out of the enterprise, such as a school, dormitories, and headquarters of the engineers and employees. Across the river is Mason City, a town plotted by the three private contractors who won the bid to build the dam. It was too vast an undertaking for one contractor. The Government engineers act only in a supervisory capacity. After completion it will be operated by the Government. The buildings are all heated by electricity; this was an experiment to see how the power would pay. A special Government railroad is built from a spur of the Northern Pacific at Odair, Washington, and three bridges were built across the river to support the constantly moving gravel brought to mix cement.

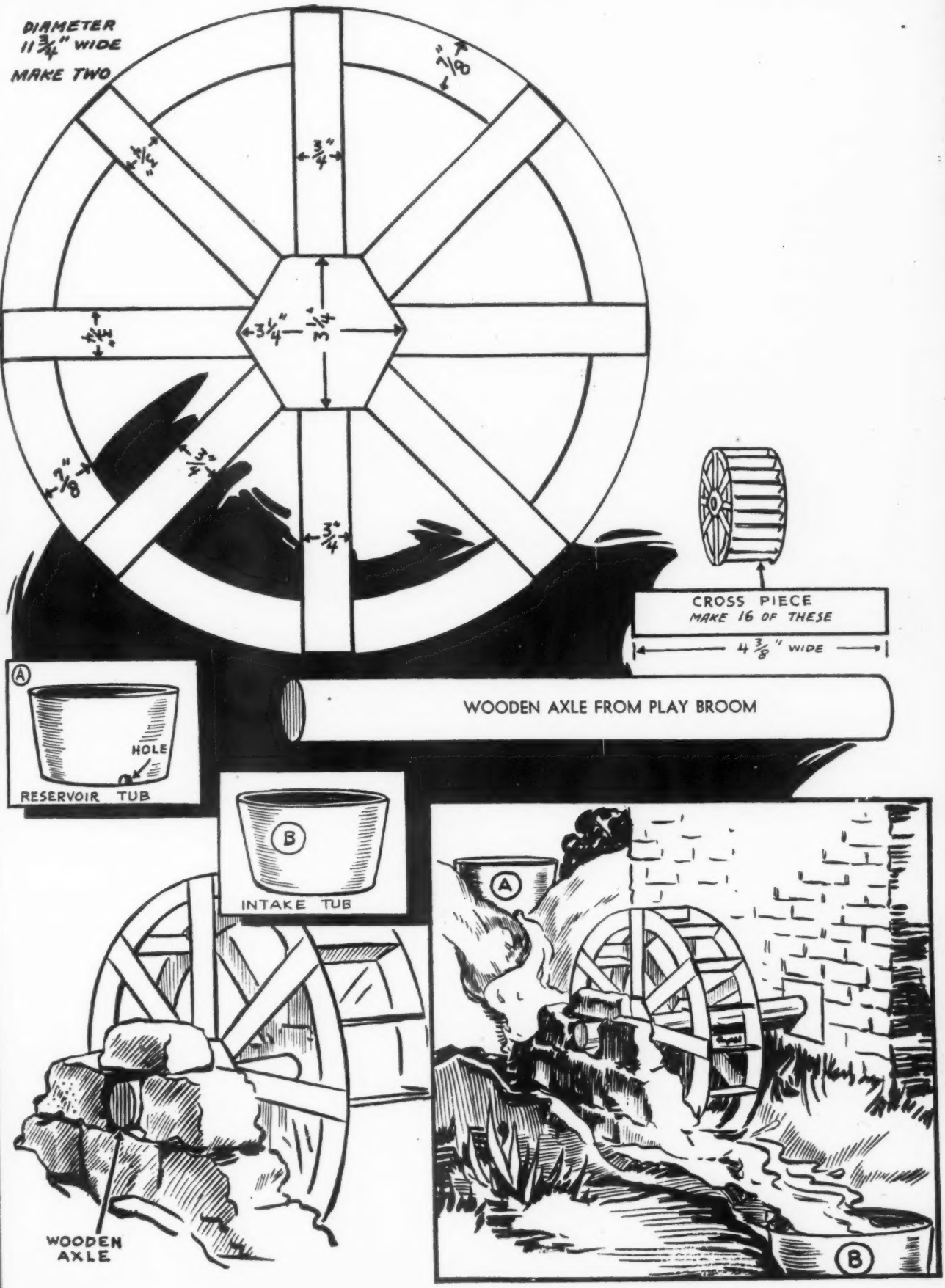
As landslides delayed the work on Bonneville Dam, the clay was frozen by running six miles of pipe into it and pumping brine, cooled by refrigeration machines, into them. As canals did not keep water out of the excavation area, cellular coffer-dams of steel were built.

ACTIVITIES

Build a dam made from a box covered with cement. Place a power house at the foot of the dam and cover with a mixture of flour, salt, and water. Connect the two with a round stick, tipped with metal, which can be bent to resemble the elbow of the pipe. Construct mountains by stretching heavy paper over triangular frames made of laths. In a crevice of the mountains paint a blue stream covered with cello-

(*Continued on page 47*)


FRONT VIEW
TRANSMISSION LINES
SIDE VIEW
REAR VIEW
CONSUMER


DIAMETER
11 3/4" WIDE
MAKE TWO
2 1/8"
3/4"
2 1/4"
3 1/4"
1 1/4"
3/4"
2 1/8"
3/4"
CROSS PIECE
MAKE 16 OF THESE
4 3/8" WIDE
WOODEN AXLE FROM PLAY BROOM
A
HOLE
RESERVOIR TUB
B
INTAKE TUB
WOODEN AXLE
A
B

Pan American Day Program

By ALICE THOMPSON

Pan American Day is observed on April 14, because on that date, in 1890, the first International Conference of American States, meeting in Washington, adopted a resolution that resulted in the creation of the Pan American Union. The day has been proclaimed in all of the twenty-one republics to give expression to friendly feeling and a better understanding among Americans. The schools in the United States are asked to learn something about their good neighbors to the South, to further their friendship. Here is a suggested program.

Try an international radio broadcast from the school. This will be imaginary, of course. Use toy chimes for time signals, and set up a small microphone. To make world events more understandable to the younger pupils, tie up the pseudo-broadcast with their own small world. Appoint one pupil for network announcer who gives the information that the broadcast is coming from Station WLM — World Literary Masterpieces. The local station announcer gives the name of the school and introduces the commentator who in this instance is the Old Woman Who Lived in a Shoe.

"Hello, boys and girls!
I'm the Old Woman who lived in a shoe
Who had so many children I didn't know what to do;
So out in the world I sent them to roam,
Hoping they'd find for themselves a far better home.
Are you there, Mexico?"

Mexico talking. I am one of The Mexican Twins. Lucy Fitch Perkins gave us a home. We want you to know we are very happy. We are neighbors to the south of the school which is hearing our broadcast and it is always sunny here, over the border. We like the hot, spicy food we get much better than the broth without any bread which the Old Woman in the Shoe gave us. We have such picturesque clothes—our blouses and aprons are embroidered, and our rebozos have bright colors.

This is the other twin talking. The boys enjoy the food and the happy-go-lucky life even better than the girls, for we can go barefooted, and have great sombreros to keep off the sun and rain. There are other story book children here, also. There is lovable little Rosita, from Russell's *Si, Si, Rosita.* The book is called that because Rosita's father usually says "Si, Si," whenever she asks anything of him. "Si" is the Mexican word for "Yes." We are very good friends, too, with Dodo, *The Little Mexican Donkey Boy,* given a home by Madeline Brandeis. We hope the children in your school will get to know them, too. Adios! "Once the dust of Mexico has settled on your heart, you have no rest in any other land," so we hope you come to visit us.

Hello, North America! We are *Peter and Nancy in South America,* brought here by Mildred H. Comfort. I am Peter. After leaving the Shoe we took a long trip, through the Panama Canal and visited Latin America, comprised of all the countries of America colonized by Latin European nations. Haiti was peopled by the French, Brazil by the Portuguese, and the eighteen other Republics by the Spanish. We found all the people warm hearted and kind and we are very happy to be a part of their home life and to be their friends.

I am Nancy. If you come to South America, I am sure you will find it an enchanting travel land. There are beautiful modern cities and tangled trackless jungles. You will especially enjoy the sight of primitive Indians, and ox-carts side by side with sleek motor cars. *Stories of South America,* by E. C. Brooks will tell you many things about this country, things about the geography and history not found in the children's books on South America. This is also true of *Stories of the Latin American States,* by Sanchez, which tells of Mexico, Central America, and the West Indies. But, here come two little Negro children of Haiti.

Hello, North America! We are *Popo and Fifina,* given a home by Arna Bontemps and Langston Hughes. I am Popo. Our father earns his living as a fisherman now that we have moved from the farm to the village.

I am Fifina, and we want you to know we are very happy in our new home, though the things we do in our everyday life are very simple. Papa Jean catches many fish and we have lots of fruit to eat. We both help to earn a living, working in the banana plantation. The sun is so hot here, we need a lot of rest in the shade. Jamaica Johnny likes to "laze" in the sunshine, too. Here he is.

Hello, boys and girls! I was given my home by Elmer and B. H. Hader, and I'm sorry to say I didn't want to go to school. But I changed my mind, and I am really a good worker. The book tells you so. The people who gave me a home have also written all about a banana plantation in a book called *Green and Gold.*

Hello, boys and girls! We are two children who help our uncle on a farm in Honduras, Central America where bananas are grown and marketed. We were given a home by M. H. Lee who has told our story in *Children of Banana Land.* But I am sure you will want to hear from Martin who got lost. Here he is!

Hello, boys and girls! I loved wandering and for many days, as *Little Boy Lost,* I discovered the beauties of nature on the South American pampas, on the hills and in the forests, finally coming to the sea. I was found by W. H. Hudson who has written all about it in an exceptionally lovely story. It wasn't all fun, being lost.

Hello, boys and girls, north and south of the Rio Grande! I am the old woman who went up in a basket, ninety times as high as the moon. I promised to be with you by and by, when I'd swept the cobwebs right out of the sky. Well, they're gone, swept away, the misunderstandings and unfriendliness between neighbors. Now the sunshine of Good Will and Peace is no longer clouded. The children of today who learn about the children in other countries, whom they have never seen, will see to it that no more clouds of war or strife will darken the skies. I'll put my broom away now and turn the work over to you. Good Bye!

Note: The books listed are for grades 4 to 6. Higher grades planning a program may prefer to stress the romantic past of the Latin countries or the present day trade geography. South America runs South from tropic lands to the cold Antarctic waters at Cape Horn, so many possibilities of a deep and abiding interest in our southern neighbors can be promoted according to the taste of the school and the age of the pupils. Any program planned should strengthen the bonds between the Americas.

CARIBBEAN SEA
ATLANTIC OCEAN
PACIFIC OCEAN
CENTRAL AMERICA
Barranquilla
Panama Canal
Maracaibo
CARACAS
Orinoco R.
TRINIDAD
VENEZUELA
GEORGETOWN
PARAMARIBO
CAYENNE
(Br.) (Dutch) (Fr.)
GUIANA
Medellin
BOGOTA
COLOMBIA
QUITO
Guayaquil
ECUADOR
Equator
Rio Negro
Amazon River
Madeira R.
Tapajos R.
Xingu R.
Araguay R.
Maranon R.
PERU
Natal
Pernambuco
Callao
LIMA
BRAZIL
Bahio
LA PAZ
BOLIVIA
SUCRE
PARAGUAY
ASUNCION
RIO DE JANEIRO
Sao Paulo
CHILE
ARGENTINA
Valparaiso
SANTIAGO
Pilcomayo R.
La Paz
URUGUAY
Rosario
BUENOS AIRES
MONTEVIDEO
Rio de La Plata
N
W
E
S
FALKLAND ISLANDS
Strait of Magellan
CAPE HORN
SOUTH AMERICA

SOUTH AMERICA

"Continent of striking climatic contrasts and vast resources!"

OBJECTIVES

1. To understand how the history, customs, industries and commercial relations are modified or controlled by man's physical environment.

2. To realize that we are citizens in a world community that is dependent upon mutual commercial relations.

INTRODUCTION

South America today is playing an important part in international trade of the world—in spite of the tropical climate which encourages thick impenetrable jungles, barrier mountains which discourage transcontinental travel, few good harbors, limited navigable rivers, and unfavorable conditions for manufacturing and commerce.

This neighborly continent was discovered and colonized by white men as early as was North America, but until recently received little recognition beyond being a continent with a promising future!

Today South America is recognized as a country boasting of immense resources in precious metals, valuable woods, vast supplies of rubber, coffee, and cacao, and large production of wheat and cattle. South America has more sheep and cattle than does North America, and also more wool production!

In the olden days travelers to South America went as explorers—by difficult trips, on mule back, in canoes, camping out along the way. Today new highways, railroads and air routes bring the picturesque sights of the continent within safe and comfortable reach of all travelers.

PHYSIOGRAPHY OF SOUTH AMERICA

South America resembles North America in shape, and also in the fact that each has a great mountain system extending along its western coast acting as a backbone of the continent.

The Andes of South America are known as the second highest mountain range in the world! These mountains are noted for their mines of silver, copper and gold. Their high slopes and plateaus afford excellent pasturage for sheep, cattle and llamas.

On the eastern side of the country are the Brazilian highlands. The Guiana highlands are to the north and separated only by the valley of the Amazon.

In between these highlands is an extensive lowland drained by several large rivers. In the southern section of this plain are the pampas of Argentina—plains of long grasses with feathery white plumes, and incidentally the best pastureland of the world.

North of this extends the broad plateau of Brazil with alternate ridges and valleys, coastal valleys and interior pastures or steppes.

Further north stretches the basin of the Amazon. The plains of this region are called *silvas*. They are dense, dark forests covering the whole countryside. Occasional floods make the land swampy. Tall trees are matted together with hanging vines and air plants, high ferns and other plants growing in between. Vegetation is green the year around. These forests are inhabited by wild animals and savage inhabitants who still exist by hunting and fishing.

The basin of the Amazon is separated from the basin of the Orinoco River by the Plateau of Guiana. The broad, flat valleys of the Orinoco are called the "llanos." These plains are covered with grasses and herbage making good pasturage for the cattle and horses.

The coast of South America is either very low and straight or very steep, thus there are few good harbors.

CLIMATE

Nearly two-thirds of the continent lies in the Torrid Zone or hot belt where there is no change from summer to winter. Heavy rainfall and warm temperature make luxuriant vegetation all year around, especially in Peru and northern Chile.

The southern part of South America is in the Temperate Zone, having four seasons of the year, but when it is

After duplicating this page color and cut out the circles and mount around the map of South America. Draw lines or paste colored strips of paper from the circles to the proper countries on the map, after referring to the Unit Study. The products as represented by the illustrated circles are as follows: (A) Lumber. (B) Rubber. (C) Tobacco. (D) Coffee. (E) Cacao. (F) Cattle and Meat. (G) Diamonds and Emeralds. (H) Petroleum. (I) Gold and Silver. (J) Copper. (K) Cotton. (L) Coal and Iron. (M) Sugar Cane. (N) Grain. (O) Wool.

A.

B.

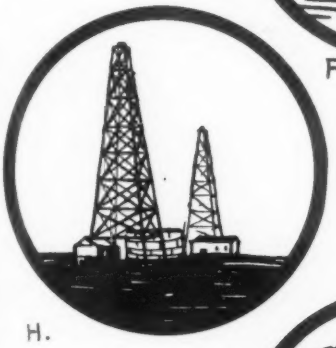
C.

D.

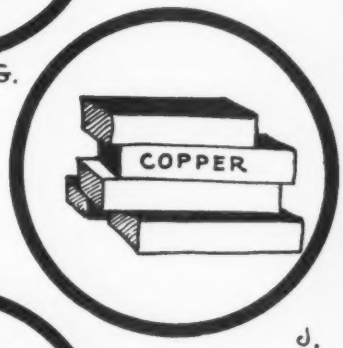
E.

F.

G.


H.

I.



J.

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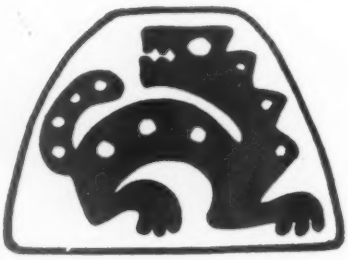
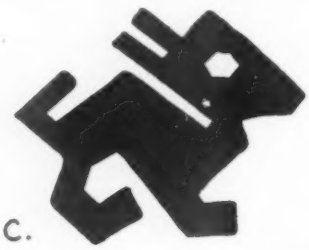
SOUTH AMERICAN ART



A.

B.



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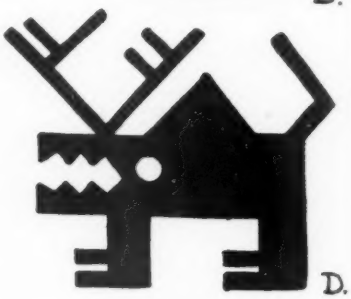

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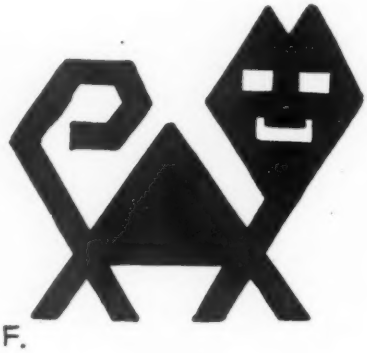


F.

G.

H.

I.

J.

The early South American Indians, before the coming of the Spaniards, were noted for the excellence of their arts—pottery, weaving, architecture, and jewelry making.

The designs on this page are typical of the art of the early Peruvians, and are still being used by the South American Indians of today in their craft work. They are as follow: (A) Lion. (B) Man. (C) Rabbit. (D) Deer. (F) Cat. (E) (G) and (I) Forms of pottery. (H) and (J) Gold Ornaments.

The children may use these designs as decorations to paint on clay pottery or wooden mixing bowls that may be purchased at the 5 and 10 cent store. The designs may also be carried out in weaving projects. Or, they can be used in repeat cut paper patterns for decorating the covers of South American scrapbooks.

winter in the United States, it is summer in southern South America.

PEOPLE

Today the inhabitants of South America are mainly half-breeds, negroes, Italians, Spaniards, Germans, Englishmen and citizens of the United States. Most of these people are settled at the mouth of the Plata and northward on the east coast.

South America, before the coming of white man, was inhabited by savage Indians who were partially civilized. They were divided into many tribes, all speaking related languages. They wove cloth, made pottery and built excellent roads.

POLITICAL DIVISIONS

All the countries of South America are commercially important. Nearly all are known to us through their products which we see or use daily.

In studying these countries endeavor to bring out the individuality of each—the characteristics and extent of the chief regions, significance of resources and locations, etc.

In addition to giving the cities, chief products and industries and other points of interest, we have given a few questions for map study, discussion and reference work.

The resourceful teacher will enlarge or modify the material provided in this unit to suit the maturity of her pupils.

BRAZIL

The largest republic in South America with vast resources still barely touched!

Cities: Rio de Janeiro, (capital, seat of Brazilian government and railroad center), Sao Paulo, Sao Salvador (Bahia), Recife (Pernambuco), Belem (Para), and Santos.

Products: Coffee, sugar, cotton, rubber, sweet potatoes, tobacco, corn, cacao, tapioca, cattle, timber, gold, iron, coal, manganese, diamonds.

Industries: (Mainly in Rio de Janeiro) Textile and flour mills, sugar refineries, furniture and shoe factories, slaughter and packing plants, ship-building.

• What 2 countries does Brazil not border? What bounds Brazil on the north? South? West? East? How does Brazil compare in size to the United States? What are the 3 main physical regions and what main industries or crops prevail in each?

ARGENTINA

The second largest country in South America, and leader in commerce. Climate is healthful and favorable for agriculture and grazing.

Cities: Buenos Aires (leading port and largest city of continent), Rosario, Cordoba, La Plata, Tucuman, Bahia Blanca.

Products: Wheat, corn, flaxseed, sugar cane, cotton, tobacco, lumber petroleum, gold, silver, copper, tin, salt, tungsten, flour, frozen meat, wool, hides, cheese, butter.

Industries: Manufacturing of cotton cloth, carriages and furnitures.

• What are the boundaries of Argentina? What are its geographical regions? Make a study of each, discussing the products and physical features of each.

CHILE

A long narrow ribbon of land between the Pacific and the Andes.

Cities: Santiago (Capital), Valparaiso, Concepcion, Antofagasta, Iquique.

Products: Nitrates, iodine, borax, gold, silver, copper, cobalt, coal, iron, manganese, grain, flax, grapes and other fruits, vegetables, tobacco, live stock, wool, meat.

Industries: Mining, lumbering, grazing, fishing.

• What are the 3 physical regions of Chile, and the characteristics and products of each? Name some of the uses of nitrate. Why is the climate of Chile subject to startling change?

PARAGUAY

One of the most isolated countries of the world—no seaboard and only one railway.

The capital is Asuncion and carries on an extensive trade in hides, horns, bones and other cattle products, and is well situated for river commerce with the interior as well as for oceanic commerce.

Grazing products and tea are the leading exports of Paraguay.

• What countries surround Paraguay? What is *mate?*

URUGUAY

Smallest of South American countries, yet the finest for grazing. No mountains, deserts or ancient ruins—just a rolling plain with ideal climate.

Some mineral wealth, but its exports of meat, hides, wool and wheat make it a prosperous country.

The capital, Montivideo, is center of country's foreign trade.

• What separates Uruguay from Argentina? What is the only navigable river in the country?

BOLIVIA

An inland country just beginning to draw upon its wealth of natural resources.

Cities: La Paz (Capital and largest city), Cochabamba, Postosi, Sucre and Santa Cruz.

Products: Grains, semi-tropical fruits, coffee, tobacco, salt, sugar, cotton, silver, copper, tungsten, lead, antimony, mahogany, ebony and rosewood.

Industry: Mining.

• Why is Bolivia the most backward and least developed country, in spite of its wealth of natural resources? What countries surround it? How do the climatic conditions differ in various parts of the country? Who was Simon Bolivar and why was he called the "Washington of South America?"

PERU

The historic land that was once a great part of the Empire of the Incas.

Cities: Lima (Capital), Callao.

Products: Wool, sugar, cotton, and petroleum.

Industries: Grazing, making panama hats.

• What are the 2 distinct regions of Peru? What are its boundaries? Why is it impossible for Europeans to live in the Montanas?

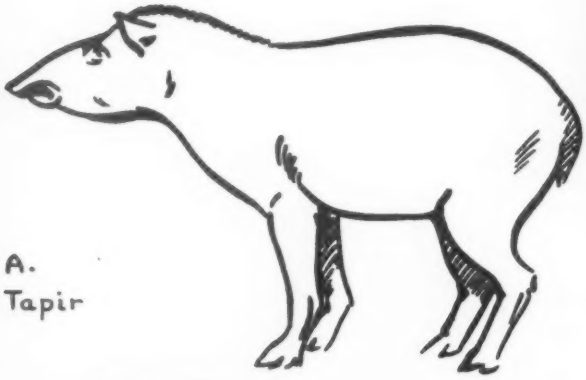
COLOMBIA

A treasure land rich in products.

Cities: Bogota (Capital), Cartagena, Puerto Colombia, Buenaventura.

Products: Coffee, bananas, quinine, ipecac, rubber, alligator leather, tortoise shells, cattle, oil, emeralds, plati-

The illustrations on this page are:
A and B—two typically South American animals.
C—Natives loading cotton on boats in Peru.
D—Sure-footed llamas are the beasts of burden in the Andes.



A.
Tapir

C.

B.
Anteater

D.

num, gold, silver, copper, iron and coal.
Industries: Farming, mining.

• What republics does Colombia border? What is the reason for Colombia's slow development?

ECUADOR

Land of varied scenery and climates.
Cities: Quito (Capital), Guayaquil, Cuenca.
Products: Cacao, cinchona, sarsaparilla, timber, panama hats, india rubber, coffee, hides, sugar, potatoes, gold, silver, petroleum, sulphur, copper and iron.

• What are the characteristics of this country? Explain the various climatic conditions.

VENEZUELA

Land of high mountains, tropical forests and wealth, yet undeveloped and practically unexplored!
Cities: Caracas (Capital), Valencia, Maracaibo.
Products: Cacao, coffee, cinchona, tobacco, hides, rubber, silver, gold, oil, sugar, cotton, wheat, coal, sulphur.
Industries: Meat packing, mining, grazing, manufacturing of cement, glass, cigarettes, chocolate and shoes.

• What river flows through central Venezuela? What is the only way to get to Venezuela, inasmuch as no railroads cross the frontiers?

GUIANA

A country of low-lying swamps and tropical forest with abundant plant and animal life, bounded on the south by the Guiana highlands.
Cities: Georgetown, Paramaribo, Cayenne.
Products: Sugar, cacao, gold, rum, molasses and rice.

• What are the 3 colonies of Guiana? What countries own them? Why is this country unhealthy to live in? How have the Dutch made their colony to resemble their native land?

There are innumerable ways in which you can correlate this geographical unit of South America with your other curricular studies.

MAP STUDY

• Color the map of South America on Page 17. As you study the physical features, cities, rivers, etc., point them out on the map. Each child should have such a map. As you study the products and industries of each country, color and mount the parts on Page 19 around the map and draw lines from the region to the product.

• Relief maps can be made of South America, showing mountains, plains, etc.

ART

• Make a scrapbook to keep projects, written work, pictures, clippings, maps,

etc. The illustrations on Pages 22 and 24 may be used for making the cover or the inside pages, or they may be applied to more detailed studies of the countries, or stand-up projects, posters and dioramas.

• Bring to class specimens for nature drawing lessons and objects which relate to the unit study.

• Make designs and borders of tropical flowers and plant life to give your classroom appropriate atmosphere for the unit.

• Make large picture charts showing some of the many uses of rubber.

• Study the arts and crafts of the South American Indians — weaving, dyeing, pottery and metal work. See Page 20.

NATURE STUDY

• Study about the South American animals: llamas, sheep, cattle, jaguars, monkeys, anteaters, tapirs, armadillos, vicunas. Birds: condors, humming birds, flamingoes, toucans, aracaria, chatterers, parrots. Reptiles: alligators, boas, rattlesnakes, turtles. Insects: butterflies, beetles, etc.

• Make booklets and mount pictures of these various forms of animal life from South America.

MUSIC

• Discuss the rhythmical music of South America. What instruments are characteristic of the continent? If possible play recordings of the music. Discuss the influence of environment and people on the music of a country. What is the music of the gauchos?

SCIENCE

• Study about various minerals. Make a collection for your classroom.

• Make an indoor garden of ferns and mosses.

HEALTH

• Discuss the health condition for living conditions of the nitrate workers of Chile, the inhabitants of the Amazon Valley, the Bolivian Plateau, and south Chile.

READING

• Read books and adventure stories of South America.

• Read material from magazines and encyclopedias.

LANGUAGE

• Write poems and stories about South America. ("My Journey on the Amazon," "Down in the Nitrate Mine," etc.)

• Pronounce correctly and distinctly the difficult names of cities, rivers, etc.

ARITHMETIC

• Find the latitude and longitude of various cities and divisions of the continent.

• Count the number of rivers in the continent.

• Count the number of navigable rivers.

• Count the number of important cities.

• Count the number of harbors.

• Take outlines of squares, circles, triangles, and rectangles and compare with an outline map of South America. Which shape does the continent resemble?

SPELLING

• In written exercises, mapwork and reading it is necessary to know how to spell correctly the names of the countries, cities, rivers, physical divisions, etc.

HISTORY

• Study about the exploration of South America. What resources the explorers found.

• Give reports on the South American Indians—their living conditions, occupations, arts, etc.

• What two European countries had practical control of the continent after discovery? How was independence gained?

• Study about the Strait of Magellan. How was it named, its value in commerce, etc.

ADDED ACTIVITIES

• On a map compare the harbors of South America with those of North America.

• Discuss the advantages of aviation as a means of commerce and travel in South American countries.

• Make a sandtable model of South America showing the highlands, lowlands, jungles, plains, rivers, lakes, cities, etc.

• Make a collection of rubber articles and study how they were made.

(*Continued on page 47*)

A.

B.

After duplicating and coloring, the pictures on these pages may be used in a scrapbook, or as subjects for posters or dioramas.

The illustrations are as follows:

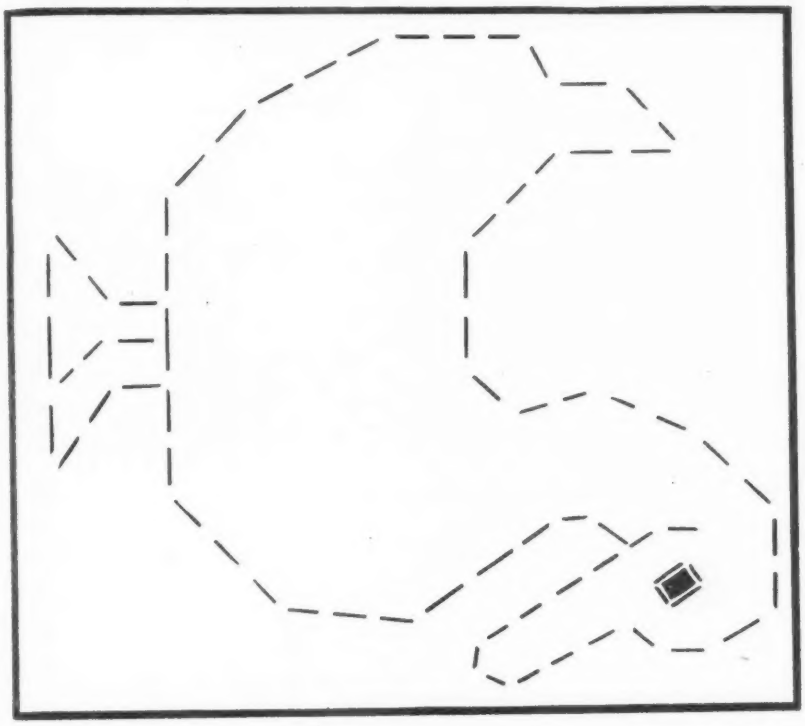
A. Christ of the Andes — A large statue of Christ which stands on a high peak between Argentina and Chile. It was made from cannon used in the last war between these nations and now stands there as a symbol of peace.

B. Peruvian Indian woman spinning yarn for ponchos.

C. Gauchos making camp on the Argentine pampas.

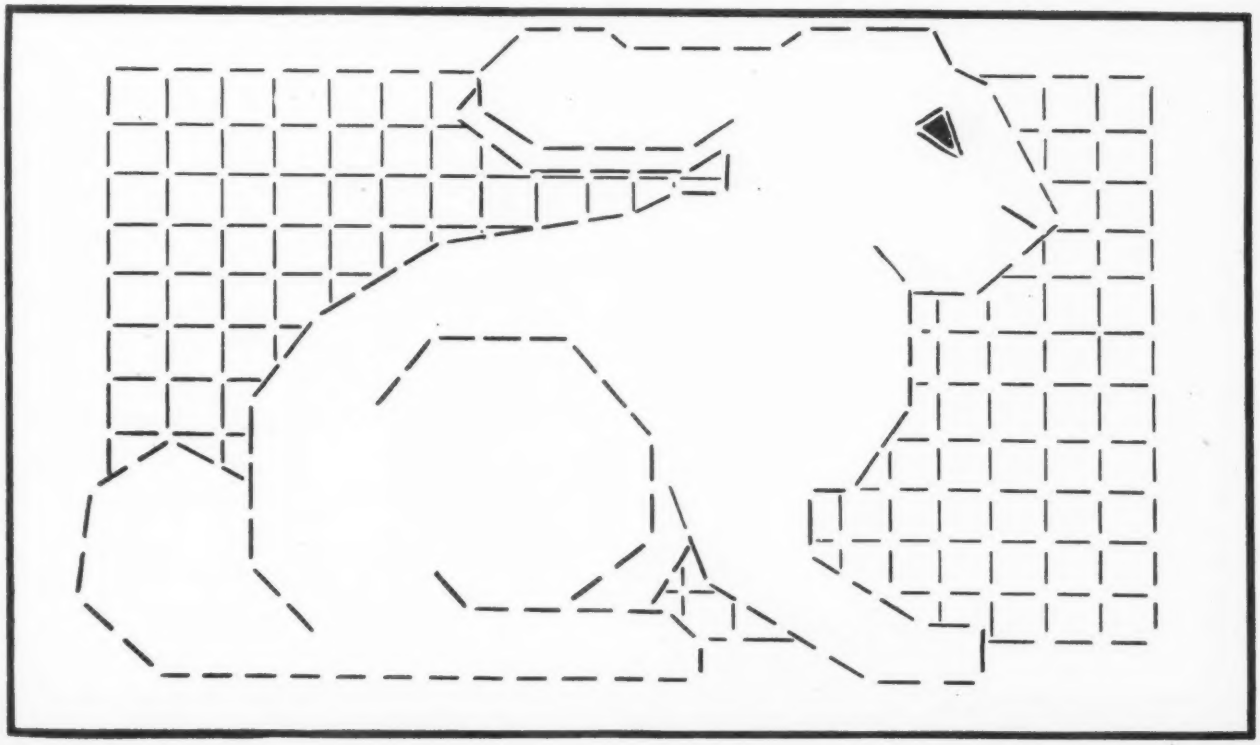
C.

SEWING CARDS



· WHAT TO DO ·

Cut out and mount the two cards on lightweight cardboard and cut ··· Use colored string or yarn for sewing ··· The black lines will show you where to sew ··· On the duck, after sewing, color the background blue with crayon and paste the picture on light colored paper ··· Sew the bunny with orange and sew the background in green or brown and paste on yellow paper; these cards would also make good patterns for quilt blocks for doll beds or ideas for designs on pot-holders ··· Don't forget, Mother's Day is next month and pot-holders make a welcome gift.



Progressive Arts in Progressive Schools

By HAROLD R. RICE
Dean, Moore Institute of
Art, Science and Industry,
Philadelphia, Pennsylvania

FLOWER AND FLOWER PROJECTS

Too often teachers are of the opinion that all art work must correlate with the subject material in the academic work being pursued. True, the major portion of the work should be so correlated, but there are times when a variation is a relief to the student. Too, the basic objectives in the art course of study are forgotten in the interests of the projects. It is just as dangerous to "over-correlate" as it is to "non-correlate." A well balanced program should be followed.

The question of *interest* looms up just as soon as we leave the correlated path for new and greener fields. We must select projects or problems of immediate interest to the pupil at all times.

With spring just around the corner, flower projects are always of interest to the pupil. It is with this in mind that I take up the ELEMENTS OF FLOWERS which is listed under *Representation* in Grade one of my Course of Study. (Copies may be obtained from Mr. Z. M. Walter, Superintendent of Schools, Wyoming, Ohio. Price 50c per copy)

In designing flowers, we return to our old friends, the SEVEN SYMBOLS: straight line, half circle, S curve line, spiral, zig-zag, wavy line and scallops. (See illustrations.) These symbols will constitute the lines to be used. In addition, there are certain simple geometric shapes that will be employed — the square, rectangle, triangle, diamond, and the circle. With these tools we set to work on an interesting new art subject.

There are any number of desirable approaches in presenting a floral problem or project. It is impossible to give any definite procedure here, as the manner in which the project is introduced will largely determine the plan followed. At times it is desirable to give the pupil the tools mentioned above. Starting from this point, make sketches or design imaginary flowers. After a number of desirable flower designs are created, these can in turn be applied to a "use," leading to a nice project of immediate need. The "uses" possible are listed at the conclusion of this article.

Again, some teachers will take a different approach on this flower matter. They will obtain as many living specimens of flowers as possible, and then study the general GEOMETRIC SHAPE of each flower. It will be found that some are cylindrical, some rectangular, circular, triangular, etc. With these basic shapes in mind, the student may either create a simplified design to resemble a flower, or (especially in the lower grades) create an imaginary flower starting with the basic form and elaborating upon the same.

As shown in the illustrations, we start with a simple geometric shape. Then, we use our symbols to form leaves, petals, etc. It is at this point that we can be of valuable service to the child. The average conception of a flower in the mind of a small pupil is . . . a circle for the center with a number of long daisy-like petals. I believe most of my readers will agree that this is the type of flower they are now getting. Stress first the VARIETY of size and shape. Perhaps this can be best explained to the pupil by presenting the following story:

"Boys and girls, I wonder how many of us appreciate just how different we are from each other. Every girl in the room has a different kind of a dress. No two of us look exactly alike, (unless we have twins) and no two of us think or act exactly alike. The boys all have different neckties, wear different colored suits and hats. What an awful life this would be if we all looked and dressed alike and did the same things. . . . And so it is with our designs. Most of us make a flower something like this: (Illustrate the above universal conception of a flower.) How many of you have made a flower like the one I have made? Quite a number have, I am sure. Now why can't we all make a different kind of a flower? Let's try. I'm sure we can!"

Additional suggestions as to different kinds of flowers are then shown, and attention called to *how* the difference is obtained. Perhaps we use a large petal, then a small followed by another large, etc. The illustrations will give any number of good examples.

After suitable flowers have been obtained, any one of the few suggested projects below can be taken up. Needless to say, you as a teacher and knowing the children's likes, can create any number of better ones.

1. OUR FLOWER GARDEN

Flowers mounted on stiff cardboard and arranged in an upright position in a sandtable.

2. MARY'S GARDEN

A frieze of flowers executed in poster paint on wrapping paper. This should be very large and painted in a dashing free style.

3. OUR DOLL HOUSE GARDEN

Flowers painted on paper placed in the rear of the doll-house, so often found in the lower grades.

4. FLOWER MARKET

Illustrations of the different flowers in front of a market.

5. TABLE RUNNER

Flowers arranged in nice border, all-over pattern, etc., applied to unbleached muslin, cut to size and hemmed, may be used for table runner in schoolroom.

6. WALL PAPER DESIGNS

Flowers conventionalized and used for all-over patterns.

7. NATURE STUDY BOOK COVER

Executed in cut-paper and pasted to colored construction paper. Imaginary or design flowers preferred.

8. SEED BOOK

Prepare a seed booklet showing the new variety of flowers the children have "for sale."

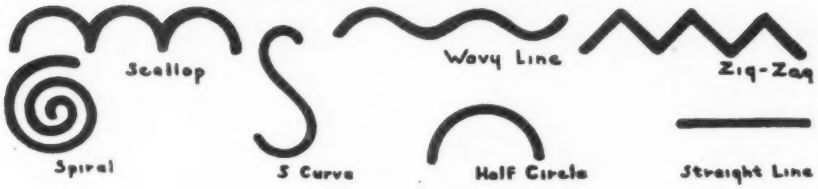
9. FLOWER EXHIBIT

An elaborate and successful project would be to arrange an exhibit. Different kinds of flowers available are collected and arranged with the teacher's assistance in appropriate vases. Other flowers are drawn or designed. These are arranged on the walls after they have been nicely mounted. Children then write invitations to their parents to come and see their flower exhibit. Some children should arrange to act as guides explaining everything in detail to the visitors.

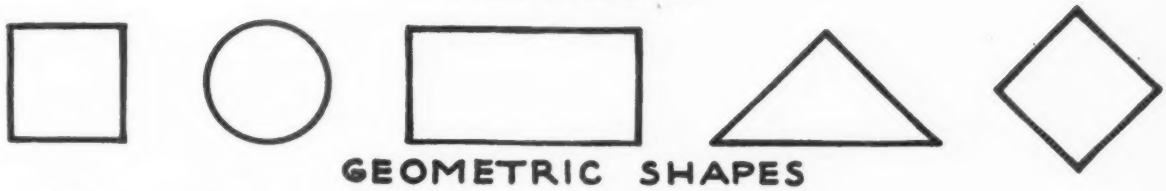
10. MURALS

Some teachers are fortunate enough to have suitable wall space available on which the pupils may paint their designs. If work is carefully supervised, the results are usually pleasing. Often a dark and uninteresting corridor, storage room, etc., can be decorated by the pupil.

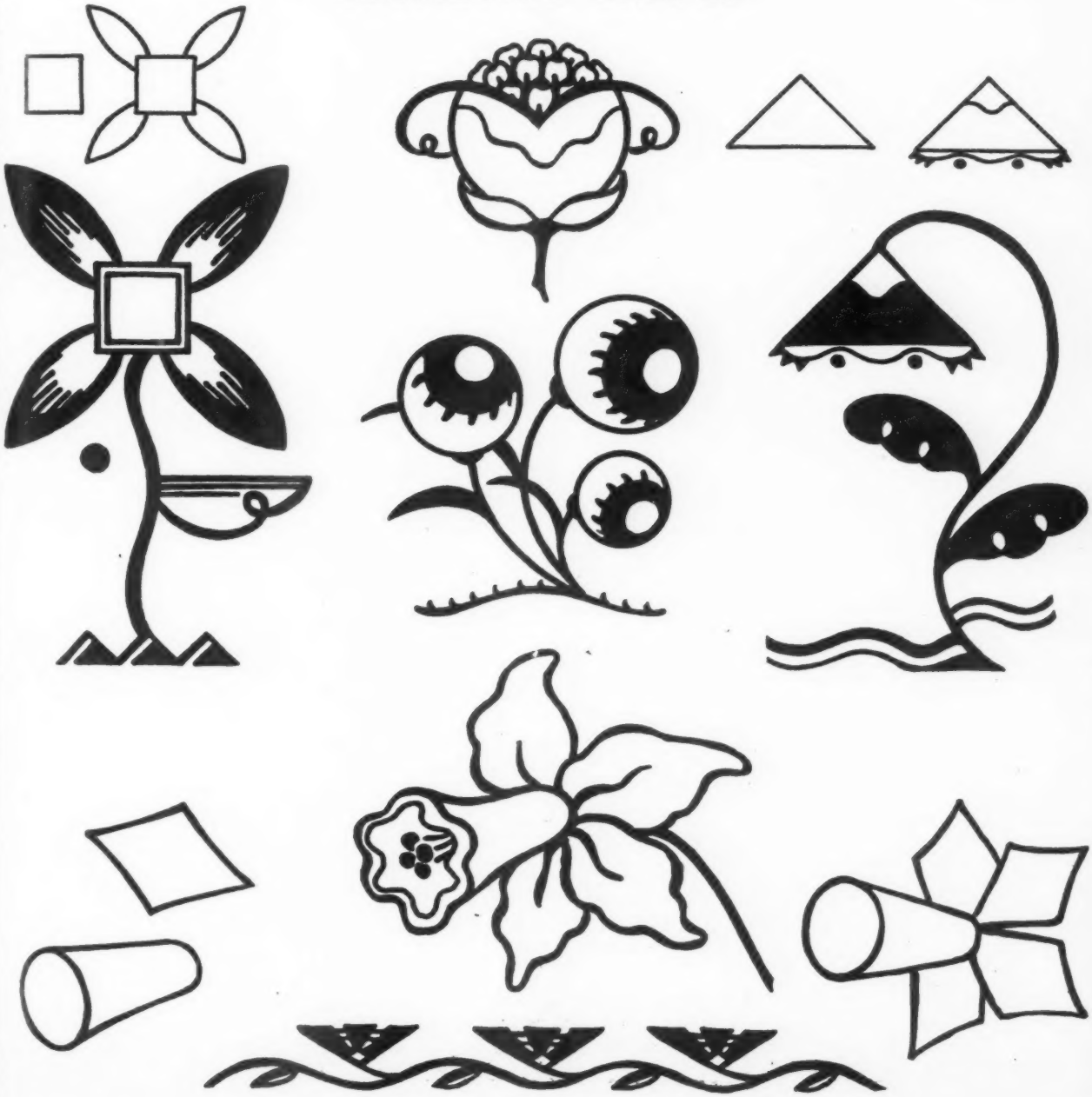
ELEMENTS

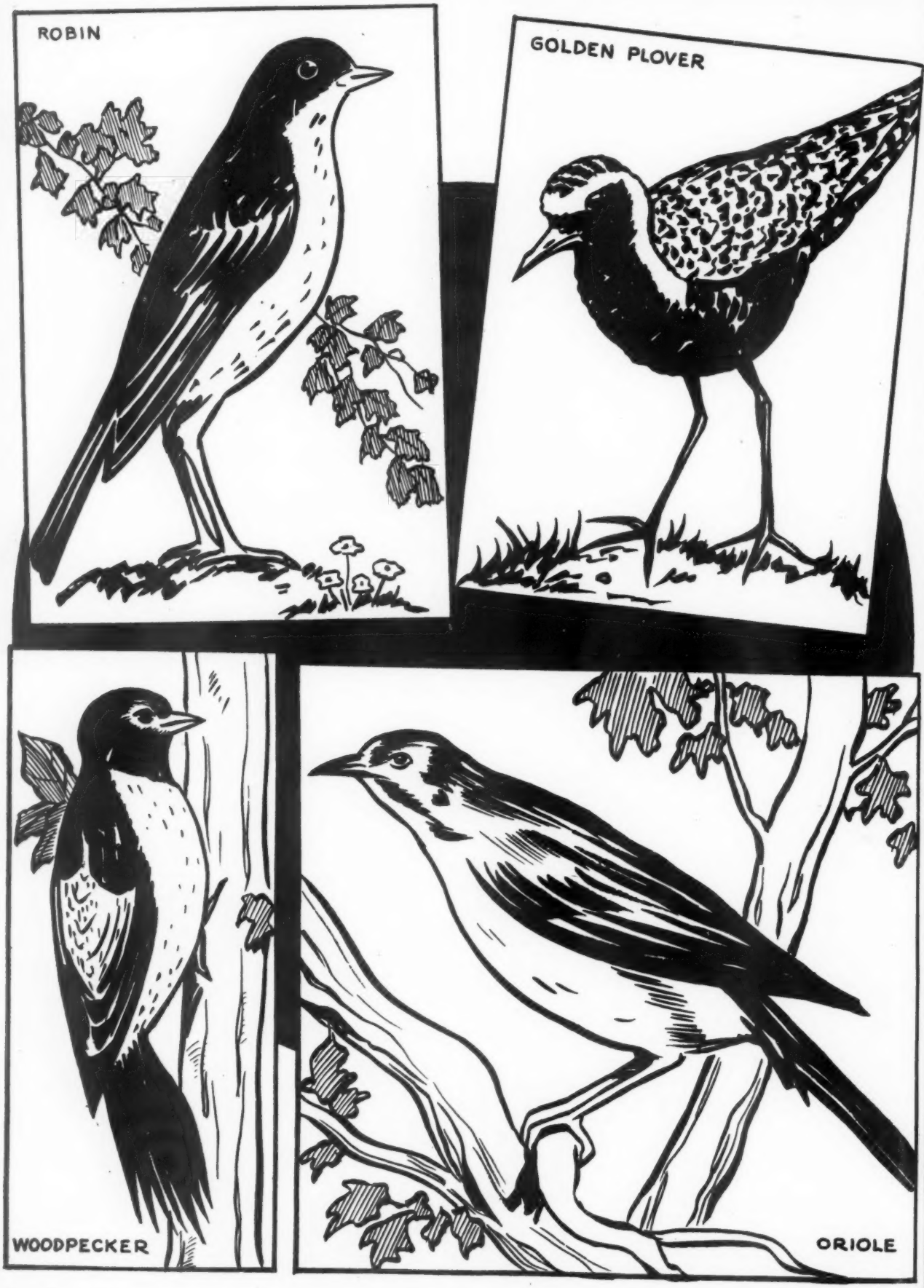


7 SYMBOLS



GEOMETRIC SHAPES




ROBIN
GOLDEN PLOVER
WOODPECKER
ORIOLE

Back Home

By Way of the Air Lines

By COLIN CAMPBELL

Many states combine Arbor Day and Bird Day. If your state does not, then observe Wilbur Wright's birthday on April 16, by contrasting travel by plane with the return trip of the birds. Make a chart showing the arrival of the birds and compare them to airplanes. Even very young children are now familiar with the words which describe the different parts of an airplane. Draw a bird on the board and show that the bird, like the plane, has main wings which support him in the air; the body, like the fuselage, holds the motor and carries the cargo while it furnishes a backbone for strength; the tips of the wings are the propellers which provide the driving force, propelling the bird through the air; the tail is the elevator which guides the bird upward and downward, and the rudder which controls direction from right to left; and the legs and feet are the landing gear.

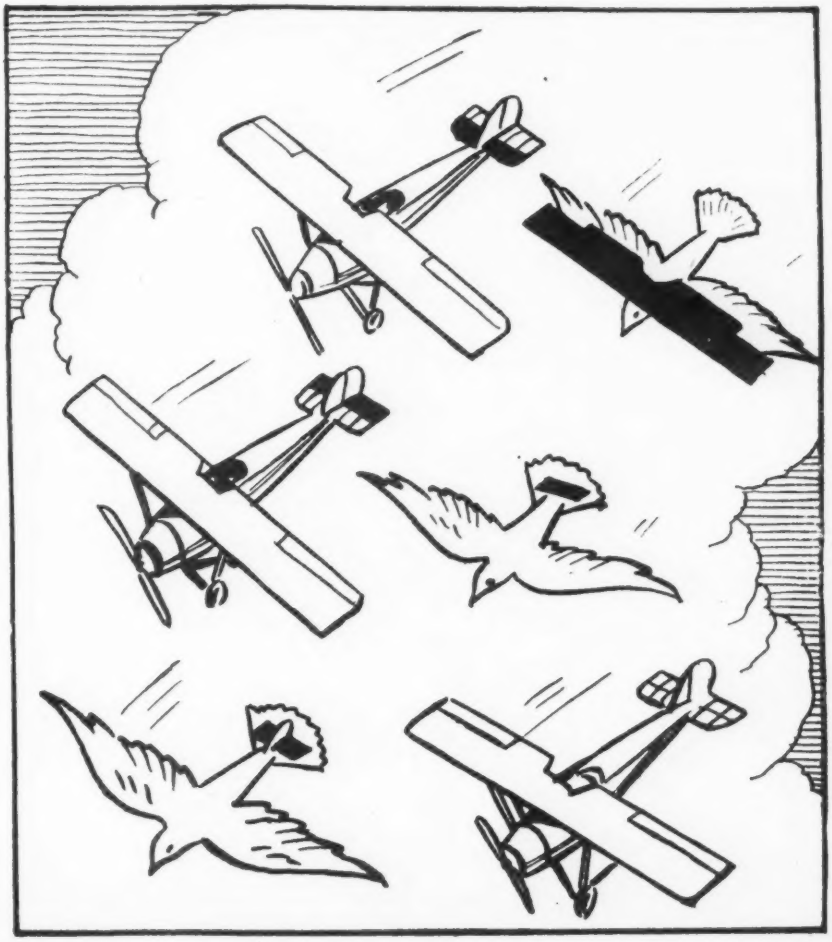
The bird is his own pilot and is taught by instinct to handle the controls. From the Observation Turret he checks position by the sun and stars, having a power plant and instruments in his Control Cabin. His fast beating heart pumps the fuel, stored in his pontoons, up to the wing tanks and engines. He is streamlined in the modern manner, but unfortunately, unlike the modern plane, has little weather protection. Robins, caught by the unusually cold weather in the South this winter, fell dead in great numbers because they could not refuel sufficiently before starting for their northern homes.

Have the children make a Log Book which lists the Ship (name of bird)—Position (place from which bird starts north)—Time (starting and landing time)—Comments. For instance, March has brought the robin, bluebird, the duck and goose (the amphibian planes which land both on earth and on the water), the meadowlark, field sparrow, red-winged blackbird, and the mourning dove. Note the time they were seen in the spring in your neighborhood; look up the place from which they started north; and comment on their flying powers and characteristics. This can be done because each bird follows the same route over which his parents flew.

If birds were awarded medals, the Arctic tern would receive the award for long distance traveling. It scoops a nest out of the snow as close to the North Pole as it can get, and as soon as the babies fly, off they start for the Antarctic continent, a mere eleven thousand miles on the wing. Then when the South Pole babies are born, back they start for the coast of Maine and on up to the Arctic.

Most of the birds from the extreme northern part of the continent travel to the eastern coastline and go on to South America by way of Florida and the West Indies. The birds west of the Rockies also fly southeast to join the eastern birds on their journey south and return with them in the spring. Coming north, the first birds arrive in March. During the three succeeding months bird families return to their summer haunts, always at a definite time. The chipping sparrows and other seed eaters arrive in April and, as it grows warmer, the insect-eaters follow. These are the swallow, thrush, warbler, wren, catbird, ruby-crowned kinglet, and chimney swift. May is really the warbler month, but the myrtle and palm warblers are April arrivals. The white-breasted nuthatch, the robin, and the bluebird have already built their nests.

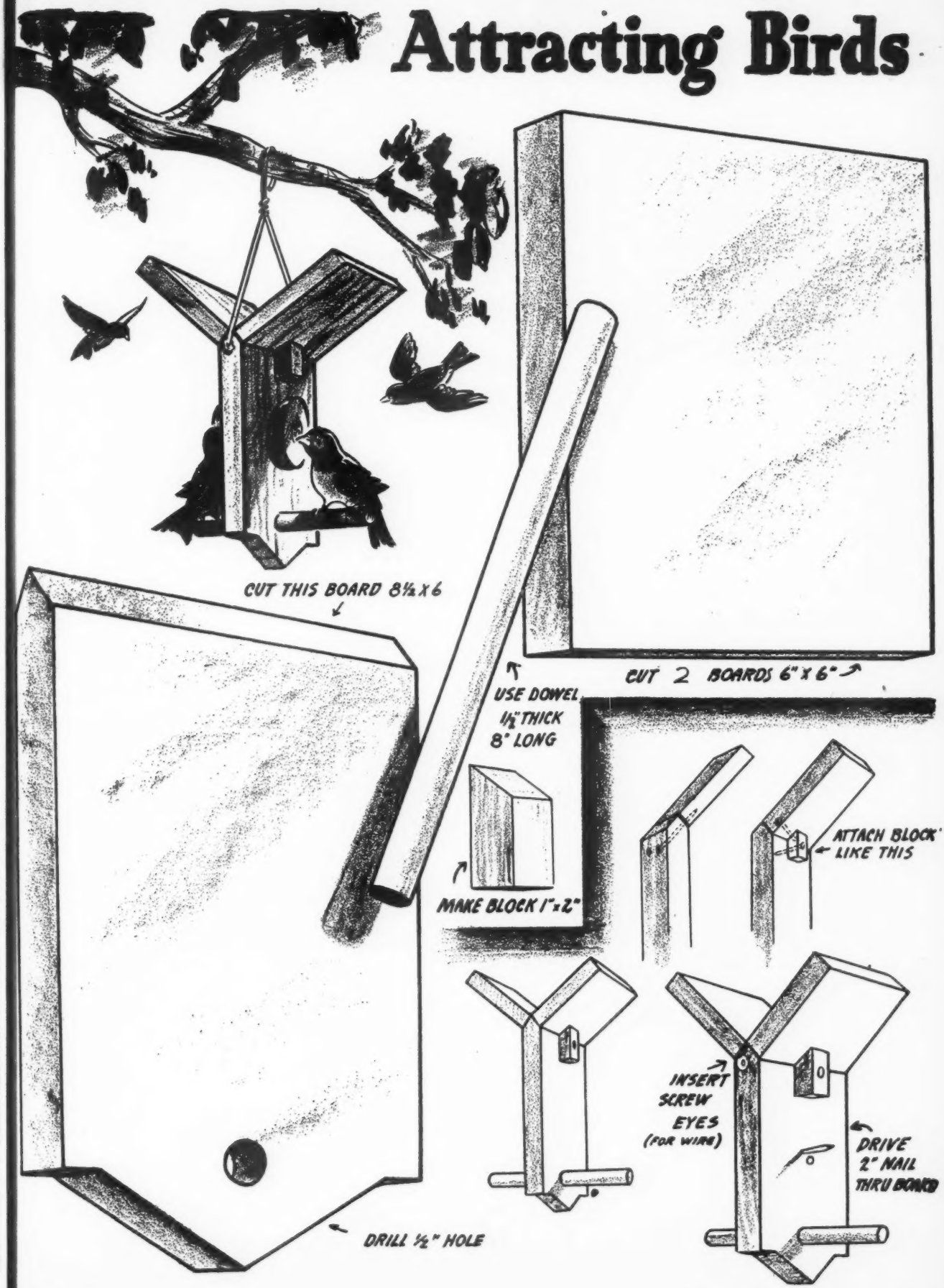
Birds are international in spirit. The cliff swallow winters in South America, following the land route through Central America and Mexico. The golden plover of the Pacific coast prefers to winter in Hawaii, but the golden plover who nests on the shores of the Arctic ocean winters in Argentina for a time, then flies to northwestern South America. Returning north, he goes through Central America, or over the Caribbean Sea, to the Gulf of Mexico, which he crosses to migrate up the valley of the Mississippi. Homing from the Argentine to the Yukon, from Southern Rhodesia to the slopes of the Cumberland, flying mile on mile, by day and night, across a pathless sky, so come our feathered friends.



BIRD LOG BOOK

The migration route of the golden plovers is shown. On the way, other birds join them or follow their route, even though their destinations are not the same. They do not return north by the same route they followed south, but take the shortest possible one. It is the last of March when they reach St. Louis and by the middle of April, they are leaving the prairies of North Dakota for their nesting grounds around Hudson Bay.

Attracting Birds


CUT THIS BOARD 8½ x 6
CUT 2 BOARDS 6" x 6"
USE DOWEL 1½" THICK 8" LONG
MAKE BLOCK 1" x 2"
ATTACH BLOCK LIKE THIS
INSERT SCREW EYES (FOR WIRE)
DRIVE 2" NAIL THRU BOARD
DRILL ½" HOLE

Our Viking Ancestors

Of all the brave men in the history of the world . . . of those who have crossed the sea, the Vikings were the bravest. Let us study as our unit for this month these fearless, daring people who lived hundreds of years before Columbus discovered America.

Correlate this unit study with your art and history classes.

On the following pages, we give you four interesting, educational projects to color and construct, in addition to this outline for study and suggestions for added activity.

I. OBJECTIVES

1. To study the historical background of our Scandinavian countries.
2. To understand and examine the achievements of early historical figures.
3. To stimulate a friendly attitude toward all nations.

II. APPROACH

In order to stimulate interest in this study of the Vikings, have your pupils collect pictures of Viking ships, helmets, swords, etc. Read and collect Norse myths. Display the pictures prominently around your classroom.

Project 1—VIKING SCRAPBOOK

Your first project in this unit study is a scrapbook cover to design, color, and construct. When completed, it will make a convenient container for clippings, pictures, poems, themes, drawings, maps, etc.

Each child designs his own original cover from the various symbolic tools, weapons and animals that are given on the project. A Viking alphabet, the letters of which were called "runes" is also given on the project sheet. Use these letters for the title of the book, the name of the author, or other purposes.

III. PROBLEMS

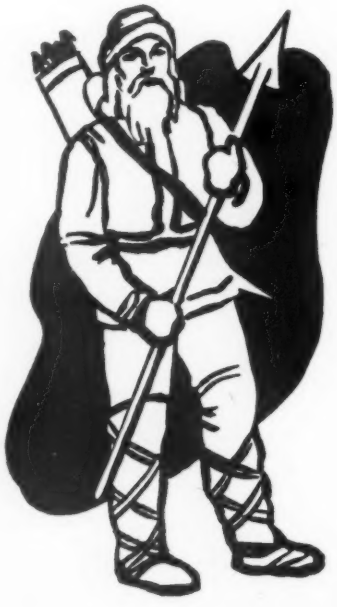
A. NORSELAND

1. Composed of what are now three separate kingdoms.
   a. Norway.
   b. Sweden.
   c. Denmark.
2. Covered with valuable forests which are green both winter and summer.
3. Fiords.
   a. Deep bays bordered by high cliffs compose the shore line.

Silent and thoughtful
Should a king's son be
And brave in battle;
Glad and cheerful
Should every man be
Till he meets his death.
—An old Viking saga.

B. PEOPLE

1. Tall, hardy blonds.
2. Noted for their fearlessness, honesty, kindliness, and most of all their love for the sea.
3. The woman spun cloth and made beautiful tapestries, besides cooking and regular housework.
4. The man hunted deer, rabbits, squirrels, foxes and bears to eat. In battle, he carried a sword, knife, shield, spear and helmet, which had cow horns to make him look fiercer.
5. Children were taught school at home.
   a. The boy learned how to handle a bow and arrow, battle ax, to guard himself with his shield.
   b. The girl learned to cook, spin and weave.
   c. Both had to learn to read and write. Letters of the alphabet were carved on stone, iron, wood, and dried skins of animals.
   d. Children also had to learn sagas, which were poems telling of Viking battles and wars, bravery and courage.



Project 2—VIKING FAMILY

The figures on this project, Page 34, are to be carefully colored, mounted on cardboard and cut.

Stand-up figures are a delight to every child, and these will place a permanent picture in the minds of the pupils, as to the clothing and characteristics of the Vikings. These figures may be appropriately used for a sandtable exhibit.

C. VIKING HOMES

The Vikings built their houses, barns and stables together around a big yard. They were built near the fiords, so that boats could be sailed right up to the front doors.

The main part of the house was the great feast hall where the big dinners were held.

On the walls of the house hung beautiful tapestries which pictured stories of famous Viking battles and invasions. Pictures cut in wood and rich furs also hung on the walls.

Project 3—VIKING HOME

This project, page 35, may also be used in a sandtable exhibit. It is typical of the ancient Viking houses and is an excellent lesson in construction for the pupils.

If pasted on cardboard before cutting, the house will be more durable. Careful folding and pasting will result in a picturesque house.

For the sandtable exhibit, add trees, shrubs, and make a lake or fiord by placing a piece of glass over the blue paper. Use rocks or large stones to represent cliffs. Combine all the houses of the pupils in the class to make a village. Write stories for the scrapbooks about "Life in a Viking Home." Illustrate. Compare the Viking home with ours of today.

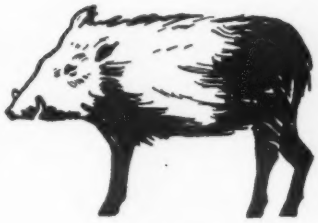
D. TRAVEL IN THE DAYS OF THE VIKINGS

1. By land.
   a. Hard earth roads.
   b. Heavy wagons with wheels of thick boards to keep from sticking in mud.
   c. Horses or cattle were used to pull wagons.
   d. Sleds were used in both winter and summer.

VIKING Scrapbook

On this page we give you several pictures for your scrapbook··Draw these larger and paste in your scrapbook, the animals together, war weapons together and so on··Add any animals or other appropriate pictures you may find by research on this unit··· we give you letters of the Viking alphabet which may be used in design on the scrapbook cover··· Also several cover designs are suggested

White bear



Wild boar

ᚠᚢᚦᛟᚱᚲᚼᚾᛁᚨᛊ ᛏᛒᛚᛗ᛫

f u th o r k h n i a s t b l m ᛫

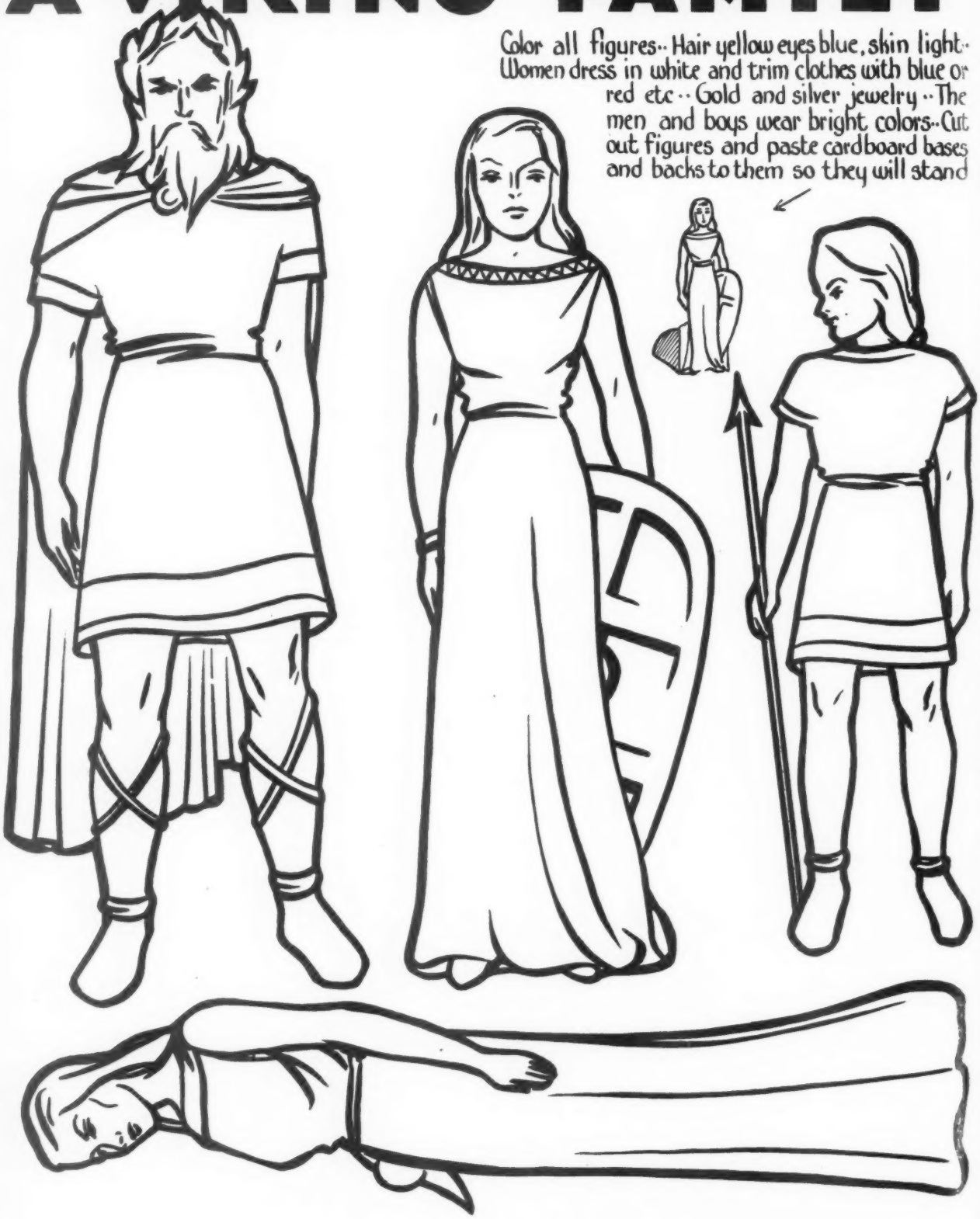
Tools

Weapons of war

To make the above cover design cut out a helmet and shield from heavy paper to use as a pattern ··· All over designs are always good cover material··Choose a title for your book and carefully letter it on the front cover or cut out letters and paste

A VIKING FAMILY

Color all figures.. Hair yellow eyes blue, skin light.. Women dress in white and trim clothes with blue or red etc.. Gold and silver jewelry .. The men and boys wear bright colors.. Cut out figures and paste cardboard bases and backs to them so they will stand



VIKING HOME • • •

Cut out all pieces and paste down on card board - Cut - Color and paste together as shown in sketch and then place on Four small blocks of wood and make door steps

Roof

Fold flaps back before pasting

Fold back and paste to roof . . . .

Fold and paste

Fold and paste

Fold and paste

Fold and paste

Fold and paste

Paste roof to this flap . . .

Fold back - Paste

2. By water.
   a. Dragon ships.
      (1) Built in the shape of a dragon. Front was carved like a dragon's head, the back had a high curly tail.
      (2) Wolves' heads were sometimes used at each end.
      (3) Ships made of wood and bound with iron for protection.
      (4) Long oars were used to row. Sails had pictures of a wolf or dragon.
      (5) Vikings named their ships such names as "King of Storm," or "Giant of Battle," or "Bird of War."

Project 4—VIKING SHIP POSTER

Here is an educational and colorful poster. It is to be colored, cut and mounted on construction paper. Draw in clouds, waves and mast, as directed on the project sheet, page 37.

Try to model a Viking ship out of soap, clay or wood for the sandtable exhibit. Let each pupil give his ship a poetic name. Write a theme or story for the scrapbooks, "When Giant of Battle Was Attacked by the English," etc., draw pictures to illustrate. Who was Leif Ericson? What did he do? What was Vineland?

E. SUPERSTITIONS AND CUSTOMS

The Vikings were superstitious people. Following are a few of the gods in whom they believed and worshiped:

Thunder was the god Thor, who was riding to battle in the storm. The beating of his hammer caused the thunder. Our Thursday is named after Thor.

Woden was the father of the gods and had only one eye, which was the sun. If one put a piece of butter in the sun, Woden would drink it up, leaving only a little bit. Our Wednesday is named after Woden.

Our Friday is named after Frey and Freya, who are man and woman and bring the flowers in the springtime.

Valhalla, the Hall of the Dead, is a great feast hall in the sky. Only men who are killed while fighting go to Valhalla. The brave men live here forever and eat and drink with Woden and Thor.

If before a battle a man dreams of Woden this means he will die in battle. The dream will make him fight harder than ever. If he does not die in battle, he will know that Woden thought he was not brave enough, and he might leap from a high cliff or cut himself with his sword in order to go to Valhalla . . . just so one does not die in bed.

At death, each chief was placed in the ship which he had commanded, with his armor and treasure. The ship and Viking were buried near the seashore.

SUGGESTIONS FOR ADDED ACTIVITIES

1. Make a dictionary of Viking words, such as runes, skis, saga, Valhalla, etc.

2. Write a theme or story about a Viking Feast.

3. Discuss a Viking White Bear hunt.

4. Make a list of the names of people you know that sound like Viking names. How were children named?

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Plan to have "open house" for the friends and parents of your pupils, when this unit study is complete. Display the scrapbooks, posters, all constructive projects, sandtable exhibits, etc., in an interesting manner. Display the best themes of the class, have them read by the pupils.

The children will enjoy this opportunity of showing their work, and the parents will want to see what their children have accomplished. This will stimulate a spirit of friendliness between teacher, pupils and parents, as should prevail in all schools.

SCHOOL GARDEN

Now is the time to beautify yards, schoolgrounds, and parks.

Why not have a school garden made by your class? Assign various tasks to each child, such as weeding, hoeing, watering, etc. Instruct them as to the planting. This class project will develop a spirit of co-operation and a love of working together as a family, toward an end that will benefit everyone, that of creating a lovely garden. It is surprising how observant the children will become, as they watch the little shoots grow into beautiful flowers.

Building up the rockwork for a small rockery in some out-of-the-way corner will interest the boys in your class, whose attention does not quicken to the flat garden bed. Let him find his own rocks, plan his own design with nature as a pattern.

If possible, let each child have his own small tract of land, to plant and care for his own flowers. This will give the child a sense of responsibility and will improve the appearance of the schoolyard. If no land space is available near the school, substitute window boxes. Have the boys construct wooden boxes and paint them a bright green and then plant the flowers in them.

Or, pupils may start a garden near their home, and each week make a report on its condition.

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The choice of seeds for the garden should be those that bloom quickly, because children feel a greater wonder and greater sense of power in the plants they themselves raise from seeds.

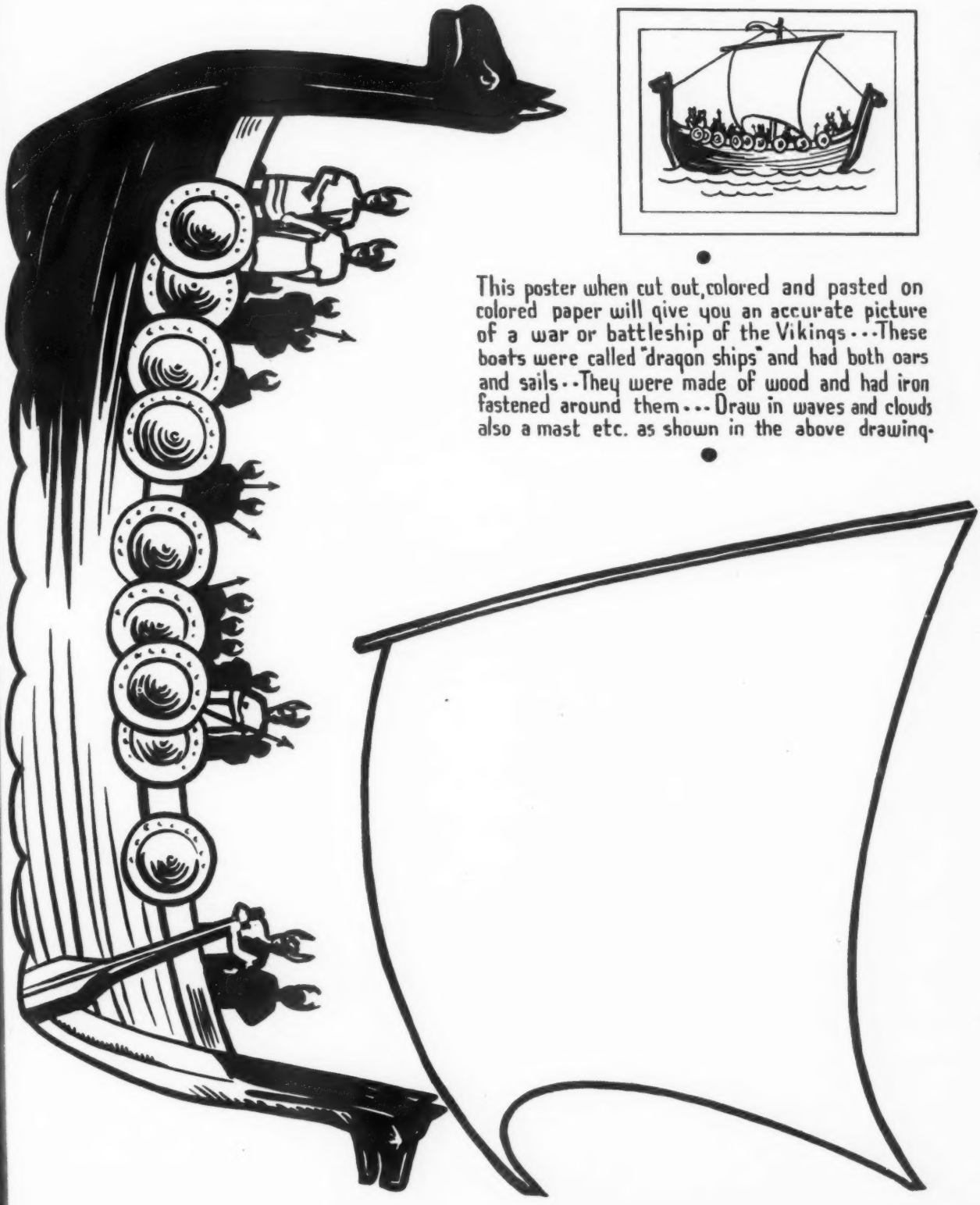
There are stocks of many kinds of flower seeds which can be purchased in small packages, enough for two children. Below we give you the names of the flowers and directions for planting.

For early blooming, these flowers may be planted first indoors until the frost is over, and then transplanted later in the outside garden.

(*Continued on page* 48)

A VIKING SHIP

This poster when cut out, colored and pasted on colored paper will give you an accurate picture of a war or battleship of the Vikings---These boats were called "dragon ships" and had both oars and sails--They were made of wood and had iron fastened around them---Draw in waves and clouds also a mast etc. as shown in the above drawing.



window decorations

·WHAT TO DO·
Carefully cut out the patterns and mount on heavier paper·· the tulip and butterfly can be used as blackboard borders as well as window decorations·· A window is shown below·

Using Creative English Words

By VIRGINIA FITZ GERALD

Simple Hand Puppets Help Solve a Difficult Problem

A great deal has been written about inspiring children to do creative work in English, but too little has been said about the use of such material after it has been obtained. "The joy of creation should be its own reward" is a doctrine which sets up a purely adult standard. Children demand some tangible goal to strive for in order to spur them on to their best efforts. The usual method is to select one or two outstanding bits for special mention and praise, with the possibility of publishing them in the school paper as a reward. Honest effort expended by the great body of the class is forgotten in the glory of the few. This practice gives an exaggerated opinion of their own ability to the selected favorites while it creates a sense of jealous frustration in the minds of others. After a few such disappointments, children cannot be blamed for asking, "How many sentences shall we write?" The creative urge has been smothered and only a dutiful obedience to a command has been left, for the pupils know that most of their efforts will be flung into the waste basket.

Creativeness begins with a period of doubt and uncertainty. The child is ashamed of his first effort, fearful of being laughed at, and hesitant about exposing his offering to public notice. The faint, first spark must be carefully nursed and encouraged to bring it into full flower; one careless word may blast a promising literary career forever. This situation might be prevented if the teacher could come to know each child so intimately that all his hopes and aspirations, sensitivities and complexes could be understood. This is almost impossible to achieve, so some method for giving each child encouragement by allowing him to bring his work to a satisfactory conclusion must be devised.

Children have an inherent love for drama. It is shown in their games, in their love to dress in costumes, even in their desire to "create scenes" when angry. This natural urge can be directed to bring the spontaneity and eagerness that is the basis of all true creative work. To see a play actually produced before an audience is one of the greatest triumphs a child can feel. No matter how poor the offering turns out to be, there still remains the glow that comes from seeing a project through to its conclusion. Mistakes are accepted much more quickly and graciously than they would be if they were merely pointed out by the teacher. Many instructors incur the animosity of their pupils by a mistaken belief that it is a kindness to keep pupils from making mistakes.

We devised a simple method for making use of this dramatic and impetuous drive. A little puppet theater was constructed and placed upon the top of the piano so that the bodies of the manipulators were screened from view. The script was thumbtacked just below the puppet opening. In this way the children could read the lines as their hands were busy with the puppets. Using this very simple equipment, everyone in the class was able to try the plays as soon as they were written. The author chose his own actors; a hurried conference was held in the corner; and, in a few minutes, the play was produced.

The importance of simple, quickly prepared equipment must be stressed. Endless rehearsing or long-drawn-out preparation for presentation makes the work fall into the class of a duty that must be endured, for the first joy of the creator is lost. To retain the primary flush of satisfaction, the work must be produced before that glow has faded. Then the desire to achieve greater and better work is stimulated.

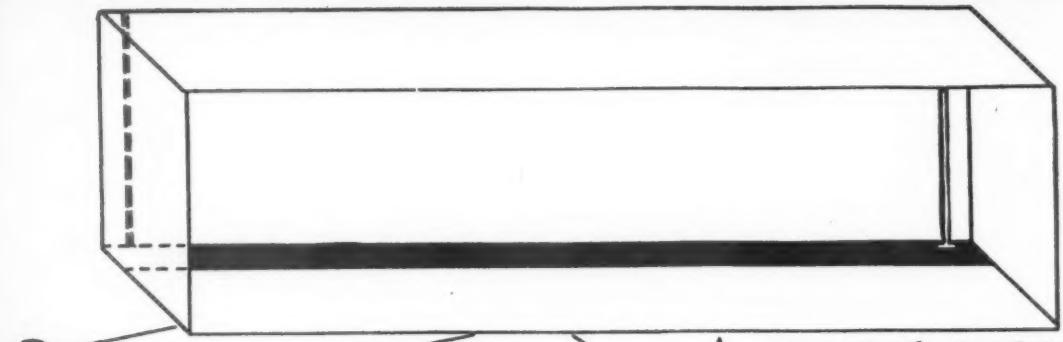
Each child was given the task of producing his own play. This gave an unlimited opportunity for leadership and created a socializing need for working together. Since the actors were hidden behind a screen, the paralyzing embarrassment that often plagues children was lacking, so the dramatization became as spontaneous as the writing.

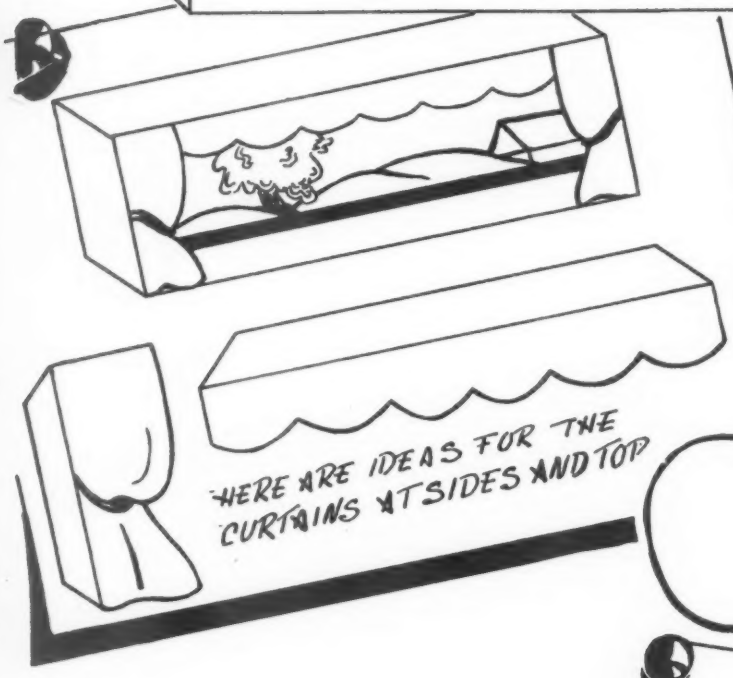
Finger puppets were chosen because they could be given to developing characteristic traits. One shy, little boy agreed to manage a dog puppet. The part was a small one, but the first appearance of the dog was greeted with so much amusement by the audience that the little actor behind the scenes became engrossed in his success. That dog popped on the stage at all times; barked, begged for food, whined, and howled until the audience became weak from laughter. Finally, one of the other puppets picked up a lead pencil, hit the nuisance a lusty crack, and shouted, "Now, stay dead!" That ended the trouble, but the boy was never the same afterwards. For once in his life, he had been the center of attention; he had achieved importance in the eyes of his fellows. This child had found a legitimate outlet for the craving for attention that often leads boys and girls to become "bad."

The freedom of action that is possible with finger puppets cannot be carried over into marionette work. This is shown by the overpowering desire of some children to reach down and straighten out marionette strings. The strings make a gap between the operator and the figure that must be bridged by skillful manipulation. Few children possess this necessary skill and must concentrate their attention upon keeping the marionette erect. In addition, the equipment needed for this more elaborate type takes so long to build, and is so expensive, that few plays can be produced. The joyous spontaneity of the simpler method is completely lost.

Puppetry was not the only method devised for self-expression. A shadow screen made from cardboard was mounted upon a table and kept in readiness for those who wished to experiment. Slides were made of cellophane and colored with ink. Most of the very cheap varieties of ink are transparent and are suitable for making lovely slides to illustrate stories. Strip theaters and individual puppet stages were constructed. Even a room library of stories, written by the children and bound into small books, was begun. These were circulated in the same way that school library books were.

(*Continued on page* 42)

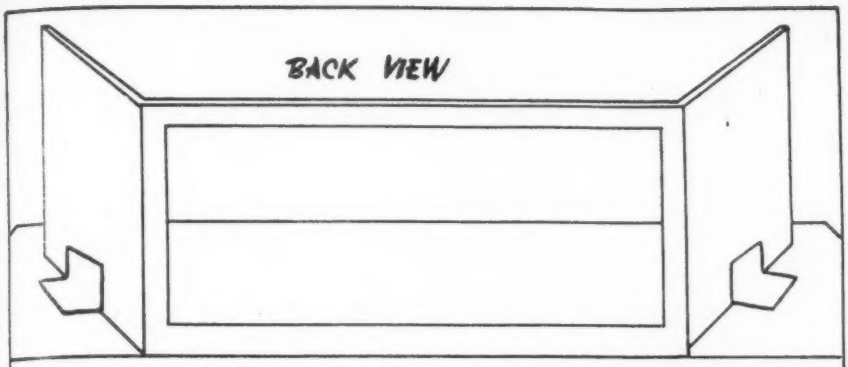




PUPPET STAGE

A very good puppet stage may be made to fit the top of the classroom piano. All the materials needed are a box the length of the piano and about one inch wider, rubber bands (or some other type of fastener), scenery painted on wrapping paper, paper drapes for the sides of the stage. At the back of the floor of the stage, cut a three-inch section from one side of the stage to the other. This will give an opening through which the puppets enter to perform. The scenery is colored with crayons. This medium is also used for the side curtains. The stage box may be colored, too, if desired. The scenery — it is a good idea to make several different backgrounds for various kinds of stage. Then, by pulling out and down through the three-inch open- plays — is placed between two rubber bands, one at each end of the ing it is possible to change scenes with very little trouble. If rubber bands are not available, twine pulled rather tight and held in position with thumbtacks may be used.

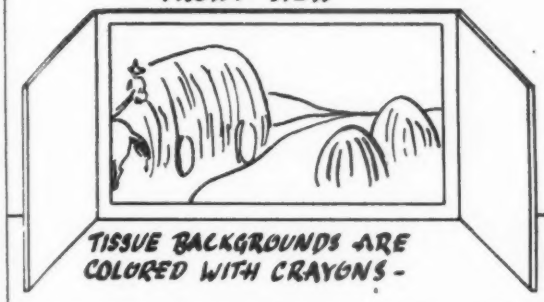
The puppets are made by sketching heads on four-inch squares of paper. Sketch a front view and a back view. For character parts, such as witches, the side view (see picture on this page) is also good. Color both sides and put them together either with paste along the edges (except the bottom which should be at least one and one-half inches wide and left open for the finger to poke through) or with gummed tape as we have shown.



THE WINGS ARE REINFORCED WITH PAPER FLAPS

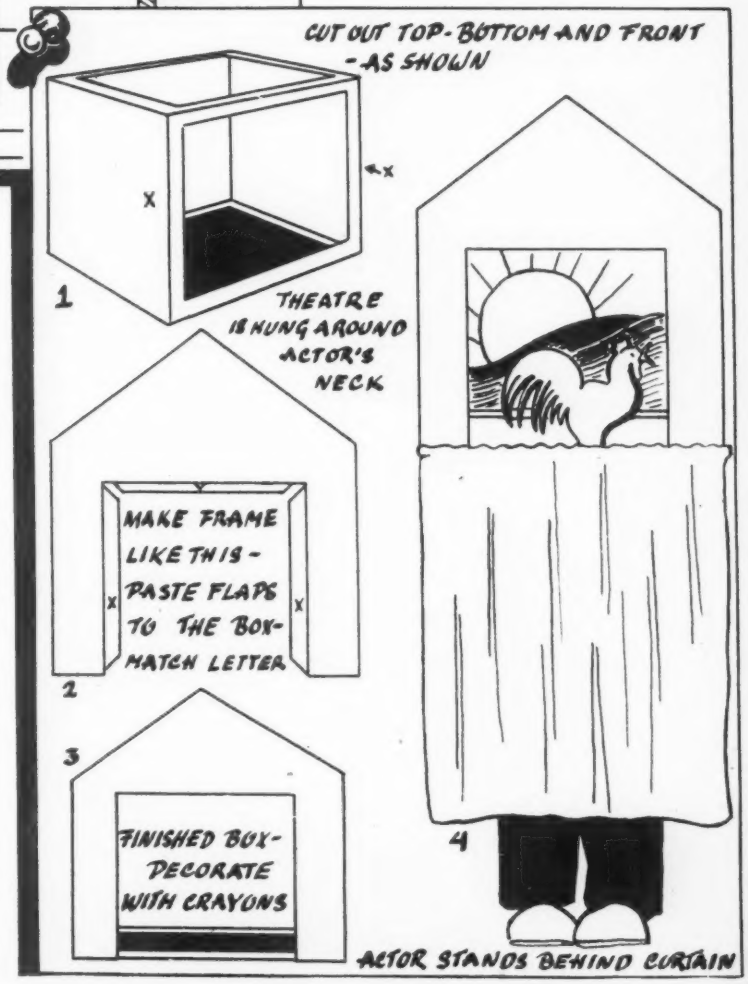
NOTICE HANDLE ON SILHOUETTE

FRONT VIEW



TISSUE BACKGROUNDS ARE COLORED WITH CRAYONS -

OTHER STAGES



Besides having a puppet stage on which the class may try out various original plays, a table shadow may easily be made to serve the same purpose. The important thing to remember in making the shadow show is that the back section must be made of tissue paper. A box may be cut so that only the two sides and back are left. From the back, cut a section as large as you want the background to be. Color scenes for different backgrounds on pieces of tissue paper slightly larger than the back opening. Pin the backgrounds to the cardboard theater or follow the rubber-band method which we have shown.

The figures for the shadow show are cut from heavy black paper. They have handles extending from the bottom of the figures. These handles are used to operate the characters as they move across the back of the stage. It will probably be a better idea to plan the plays not to have too many silhouettes on the stage at one time because the operators may get in each other's way.

The individual puppet theater is just the thing for the boy or girl who wants to make a hobby of play writing and producing. He can take the theater home with him and give his plays for his mother and father and he can use it in a great many other ways. The directions for making this kind of theater are given on this page. Follow them carefully to make certain that your theater will be easy to handle. In writing plays for your stage, remember that you can only have two characters on the stage at one time and it will probably also be a good idea to have both of your characters continue through the entire play.

Every effort was made to make the children feel that what they were doing had a worthwhile purpose behind it; that their work was desirable and worth keeping.

HOW TO MAKE A PIANO TOP STAGE

Secure a box almost the length of the piano top and an inch or so wider. Cut out one of the long sides. Cut a three-inch strip from the floor of the box, running lengthwise, along the back wall to serve as a puppet opening.

Cut paper curtains from drawing paper, decorate with crayons, and glue in place.

Fasten rubber bands from top to bottom at each side of the back wall. Draw the backgrounds on wrapping paper and snap them in place under the rubber bands. Place all the backgrounds in order, under these bands, before the show starts. Then a slight twitch at the top sheet from below will change the scenery. If chairs or tables are needed in the play, draw them on cardboard and thumbtack them to the back of the piano. The puppets can be held up behind this furniture.

The script should be written on one side of the paper only so that it may be thumbtacked to the back of the piano in such a way that the operators may read it as they work the puppets. This will make it unnecessary to memorize the parts.

LIGHTING THE THEATER

(1) Focus a light on the stage, as that from a stereopticon machine, from the outside.

(2) Cut an opening in the top or side of the box and focus a light through this.

(3) Tape a flashlight to the back of the piano, with the bulb directed upward, so that the light will fall on the puppets.

(4) Don't light the theater. Give the play in the daylight. It will be just as effective.

No draw curtains were used to conceal the stage. The puppets were simply withdrawn during the change of scene.

MAKING THE PUPPETS

Puppet faces may be drawn to show the flat, front face or the side, profile view. The latter is better for a character face, like that of a witch. Draw four-inch squares on manila drawing paper. Sketch the heads on these, leaving a neck opening that is at least one and one-half inches wide.

Cut the head out with scissors. Draw around it on a second square to form the back or other side of the head. Color both sides. Remember that the back of the head should look like one. Children are sometimes inclined to put faces on both sides. If the profile view is used, the two sides need not be colored exactly alike. A scar may be used on one cheek or the mouth may be drawn up crookedly at one end.

There are two methods of fastening the heads together: (1) Apply paste around all edges except the neck opening and press the two pieces together; (2) Cut one-inch lengths of gummed tape. Fold these in half with the gummed side out. Hold the two parts of the head together. Separate them at the top and slip the gummed tape between, with the fold at the top of the opening. Do the same at each side of the head and neck.

To use: Slip the neck opening down over the first finger. If the children have difficulty in making the heads stay in place, crease them outward slightly in the center, or apply a bit of paste to the end of the finger before placing it inside the head. Sometimes the neck opening can be made smaller. Usually, little difficulty of this kind is experienced.

The puppet coats: Cut a supply of simple, kimono-sleeved frocks from pieces of cloth about ten inches long and eight inches wide. Sew these up on the machine leaving an opening at the neck for a finger to be poked through. If a supply of these is made, they can be used over and over and laundered when they become dirty, for the cardboard heads are not fastened to them.

HOW TO MAKE A SHADOW SHOW

Secure a large cardboard box. Cut the box so that the two end pieces and one side wall are left. Cut out a square, slightly smaller than the tissue paper (see below), in the side wall.

Place this small theater on the table, bending the side wings slightly so that it will stand, and placing the back edge even with the edge of the table. Reinforce the sides with strips of paper that may be thumbtacked to the table top.

The backgrounds are made of tissue paper colored with crayons. If variety is desired, trees and houses may be cut from colored tissue paper or cellophane and glued into place upon the basic white sheet. The backgrounds may be held in place by pinning the corners to the cardboard theater, or, if a more permanent form is desired, the background tissue may be reinforced with gummed tape on all sides and slipped under rubber bands stretched from top to bottom of the theater at each side shadow opening. Narrow elastic may be used in place of rubber bands.

The figures: Cut the figures, in silhouette fashion, from black paper. Paste these on cardboard foundations leaving a handle extending below for operation. If birds are used, a pretty effect may be gained by cutting out the inside of the bird design and substituting colored tissue paper. These birds may be suspended from a ruler or stick and operated from above.

Operating the theater: Snap the background in place. Cover the front of the table so that the children cannot be seen. Those who are to work the puppets kneel back of this table. A strong light must be placed behind the screen. A narrator or several readers give the dialogue as the action takes place.

THE INDIVIDUAL PUPPET THEATER

This individual stage is operated by one person who manipulates all puppets and speaks all lines. For this reason, the plays presented in such a theater must be limited to two characters, one of which, on the right hand, usually, is more active than the other. Sometimes a silent third actor may be painted upon cardboard and glued to the front framework of the box. The same two characters must continue throughout the play for, since one puppet must be constantly on the stage, it is almost impossible to change puppet coats with one hand. Necessary accessories may be hung from the box framework inside the lower curtain or be concealed in the operator's pockets.

The stage itself is a box from which the top, front, and bottom have been removed about an inch from the adjoining walls. This basic framework may be made of either cardboard or wood. If the latter is used, the lighter it is the better, for the whole structure must be supported around the operator's neck.

A frame, large enough to extend beyond the sides of the box and high enough to conceal the head of the person behind it, is attached to the box front with glue, or, if the box is of wood, with ornamental thumbtacks. The decorations may be painted on this frame. Gold or silver paint works well on cardboard for it dries quickly and does not warp the paper as other paints do. Crayons or tempera paint also make attractive fronts.

Some arrangement must be made to conceal the operator's feet and hands. Cloth or crepe paper, gathered slightly for fullness and long enough to reach at least to the knees, may be pasted to the lower part of the box. The color of this curtain should be dark to contrast with the vividly colored box. so

(*Continued on page 47*)

Spring Cleaning

Nature Study by Elizabeth Farmer

"The year's at the spring," and the home mothers survey the grime of Winter and begin to do something about it. Mother Nature, also, gets out her vacuum cleaner, the March Winds; there is a great splashing of water in April; and by May the world is ready to be decorated anew. Mother Nature has many servants to help in this work, among them:

THE WIND

The wind's work is to scatter the rubbish. It digs it out of corners, so it can be seen. It removes dust, dries up the mud, and blows up the rain clouds. Observe the clouds. When clouds are light and separated, it means fair weather; but if they are heavy and rounded at the top, they are likely to bring rain. Dark grey clouds are rain clouds. The weather always changes when the wind changes. Keep a wind chart for one month during the spring and find out what part the wind plays by noting each day whether the day is clear, cloudy, or partly cloudy. It will rain when a northeast wind is blowing, be foggy when the east wind blows. With the south, southeast, east, and northeast winds you can look for rain or cloudy days. *Read:* The Wind, by R. L. Stevenson—The Night Wind, by Eugene Field—March Winds, in Songs and Rhymes for Little Ones. *Myth*—Ulysses and the Bag of Wind.

RAIN

Of what use is the rain? It melts the dirty snow, washes the ground, and soaks and warms the seeds. Study the Water Cycle. Hold a cold plate over a steaming kettle and see how rain is made. What makes the steam? Why does the sidewalk get dry after a rain? Put a pan of water in the sun. What happens? Air takes up the moisture like a sponge. This is called evaporation. When it grows cooler, or there is a decrease in temperature, the moisture separates from the air, or condenses, and we have dew or rain. Bring a glass of ice water into a warm room. What happens? The moisture condenses on the outside of the glass in drops like dew. *Read:* Rain Songs, by Dunbar—The Rainy Day by Longfellow—Who Likes the Rain, by Clara Bates—The Rain Song of the Robin, by Kate Upson Clark.

EARTHWORMS

Their work is to eat the dead leaves scattered through the soil. As they work their way through the ground they loosen up the soil, digging down, sometimes, to a depth of eight feet. They also let in rain and air, both necessary for plant life. Put some earthworms in a glass jar in which some dead leaves have been mixed into moist earth. Also, put in a little piece of meat. See what happens. They will clean up the soil, changing the waste matter into rich mold.

FROGS AND TOADS

The frogs are great singers, singing instead of whistling while they work. One of the first signs of spring is the song of the inch-long peeper. His tiny throat swells and swells as he calls to his mate in the ponds and lakes. But he doesn't stay in the water long, for he must hasten to the trees to free them from harmful insects. The big bullfrog sings bass and he too, takes to land seeking slugs and insects. Put some tadpoles in a glass jar and watch the hind legs develop, then the forelegs, and the tail be absorbed into the body. Provide a little island of rock and grass so they can jump about as frogs.

Toads take much longer to turn from a tadpole into a toad. They also appear much later than the frogs. They have a tongue with a hinge so they can snap up a fly or an ant in a twinkling and thus are valuable in a garden to clean it of the larvae and the ants who spoil the grass.

SEEDS

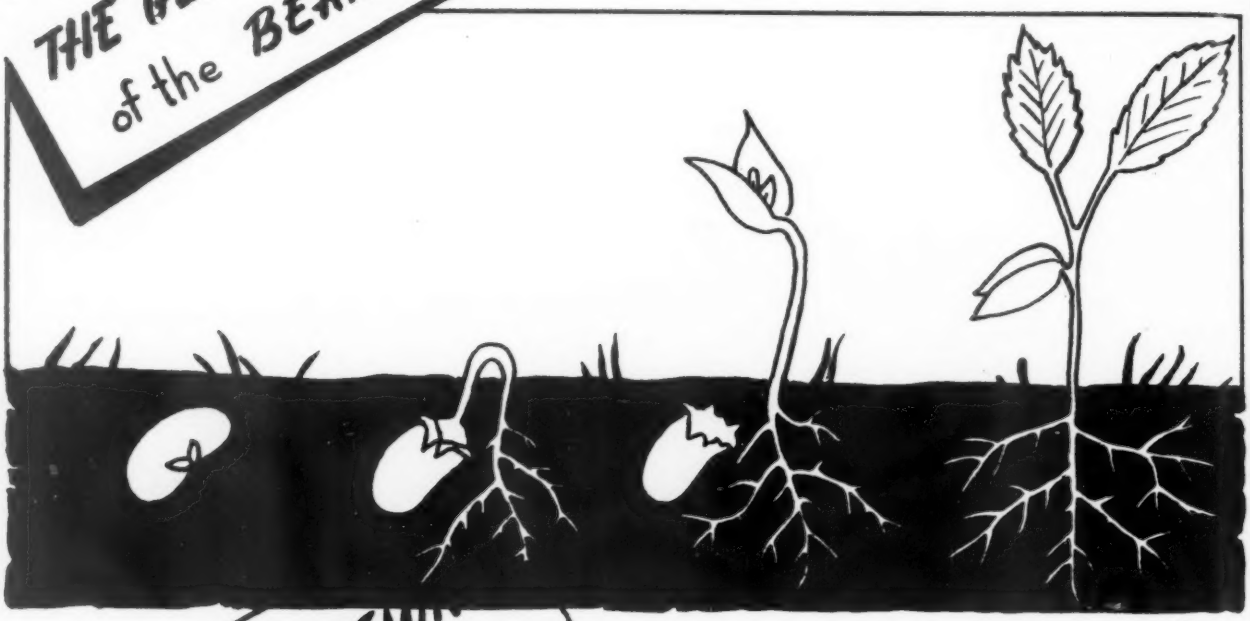
Mother Nature soon spreads a new green carpet on her nicely scrubbed earth. See if she uses a different kind on meadow, on marshlands, and in the woods. Do the grasses have seed? Collect some mosses and keep them moist in the schoolroom. The decay of mosses and lichens on rocks adds to the dust ground out of the rocks by the wind and water and forms soil. Test some seeds to see how Mother Nature obtains her green carpet. Write to the Dept. of Agriculture, Washington, D.C., for information about grasses. *Tests:* Take two pieces of blotting paper, moisten them and put some seeds between them. Keep the blotters damp and warm. Put a bean seed in each of two cans. Keep one in the light and one in the dark. Plant two more in different cans, moisten them and keep one in a very cold place and the other where it is warm. Plant some seeds in fine soil and press down firmly. Plant the same in loose soil. Weigh some beans, then soak them for 24 hours and weigh again. Have you learned the following from these experiments?
1. Seeds require moisture, heat, and air in order to grow. 2. They grow best if the soil is fine and compact.

THE SUN

When it is springtime in the North Temperate Zone, it is autumn in the South Temperate Zone. The leaves are falling in Australia when ours are just getting green. Why? The earth moves around the sun once each year. Because the path of the journey is oval and not circular, the earth is sometimes farther away from the sun than at other times. At noon, on March 21, the rays of the sun shine directly down on the Equator. Each day after, as the earth moves along

HOW PLANTS DEVELOP

THE GERMINATION of the BEAN SEED



THE GERMINATION of the CORN SEED

its path around the sun, the rays strike spots farther north, bringing warmer days. A flashlight for the sun and a revolving globe will demonstrate this fact.

As the days grow warmer, Mother Nature begins to decorate. She chooses pastel shades for her springtime world; she will redecorate with the coming of the summer sun. The leaf buds on the trees throw off their brown helmets which protected them from snow and sleet and the tiny leaves inside, complete with veins and toothed edging, appear in a delicate green draping of the bare branches. The pussy willows are decked in silvery fur. Name the first spring wild flowers, as: the hepatica, first; the bloodroot. Dutchman's breeches, trailing arbutus, anemone, trillium, and violet. Make a chart of their colors with water colors and note that their tints are pale, white, light pink, lilac, and a lemon yellow in the jonquils. The southern flowers are brilliant and as the sun grows warmer, Mother Nature will use red in her roses, flame color in her poppies, and orange-yellow in the nasturtiums. Experiment to show the effect of the sun on leaves.

1. The first of the week, pin a piece of thick paper on top of a large leaf and another piece on the under side of the leaf. 2. Remove the paper at the end of the week. *Consult:* How to Know the Wild Flowers, by W. S. Dana.

THE BIRDS

Having made her world beautiful, Mother Nature calls on more helpers to keep it so. Up from the South come the birds. Keep a chart showing dates of first arrivals. The birds work sixteen hours a day and have no holidays. To look after the grounds, Mother Nature has selected such birds as the robin, the sparrow, the crow, meadowlark, flickers and warblers, and others. They make short work of cut-worms, beetles and corn-borers, to name only a small part of their work. As the bird's heart beats twice as fast as ours and as it has a temperature much higher, birds must eat their own bodily weight daily in order to keep up their energy. They have enormous appetites and look well to find insects and weed seeds. The doves, bobolinks, bobwhites, gold finches, and blackbirds keep down the weeds.

The bark of the trees must be kept clean, so the woodpecker is kept busy listening for borers, while the flicker watches for ants and sapsuckers. The blue birds, orioles, tanagers and wrens keep the leaves free of worms, and the cuckoo has the disagreeable duty of eating the hairy caterpillar and the gypsy moths. The owls and the hawks keep down the rodents in the grain. Like the old woman in Mother Goose who swept the cobwebs from the sky, the swallows, martins, chimney swifts, and whip-poor-wills sweep up the gauzy winged insects with their sticky tongues. These birds patrol the skys, flying about with open mouths. The kingbird perches high on a tree and along with the flycatcher and peewee, swoops down to catch his prey.

The sea gulls, the vultures and the turkey-buzzards collect the garbage, disposing of dead fish and animals. *Read:* Citizen Bird, by M. O. Wright. Birds Through the Year, by A. F. Gilmore. Have the pupils make a list of bird poetry. *Dramatize* The Birds of Killingworth, by Longfellow.

Pictures and literature should supplement all nature study for, it is the surest way to teach appreciation of the art that nature has inspired. Nature Study also furnishes material for character building, for it is Mother Nature's law that none of her servants shall shirk. They must work to live. Do the school children help to make the world more beautiful by observing Arbor Day? The observance of this day was inaugurated by J. Sterling Morton in Nebraska, in 1872 and the practice of planting a tree or shrub on this day, has spread to all the schools of the country.

SEE SAW MARGERY DAW

from "Mother Goose Dances" by Edith de Nancrede and Gertrude Madeira Smith

(Music on page 46)

Here is another of the Mother Goose Dances for little children. It is not quite so simple as "Cock-A-Doodle-Do" which appeared in the March issue of *Junior Arts and Activities*. Like the other Mother Goose Dances, it is the outgrowth of many years' teaching experience with smaller children.

These dances were taught experimentally to large groups of children of various ages to test out the writers' experience and conviction that children enjoy dances most when they are given an opportunity to give dramatic expression at the same time.

The directions for See Saw Margery Daw are simple:

The children, in couples, form a large double circle. The boys are on the inside of the circle, the girls are on the outside. They face each other, placing their hands on each others' shoulders, keeping their feet together. They continue in this position through figures 1, 2, 3, and 4.

Figure 1

Music Measure 1

The Boy stoops (Bends and straightens knees).

The girl stands still.

Figure 2

Music Measure 2

The Boy stands still.

The Girl stoops.

Figure 3

Music Measure 3

Boy and Girl repeat the first figure.

Figure 4

Music Measure 4

Boy and Girl repeat the second figure.

Figure 5

Music Measures 5 and 6

They both make a complete turn in place toward the Boy's left, using 4 slide steps (still with hands on each other's shoulders).

Figure 6

Music Measure 7

They continue turning as before to the left, using very short, quick slide steps and going as fast as possible.

Figure 7

Music Measure 8

They both stoop and come up. (Down on the first chord and up on the second.)

Your editor would appreciate hearing from those who try these dances. Shall we continue with the simpler ones, or would some of the more difficult ones be better suited to the requirements? Would you like to have the music offered here quite varied in character? A dance one month, a song the next? Or would you prefer to have the music offered in series, such as a series of these dances?

See Saw Margery Daw

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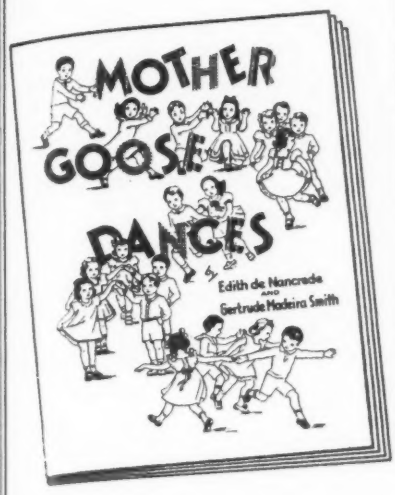
For Directions see page 45



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HAND PUPPETS

(*Continued from page* 42)

that the audience will concentrate their attention upon the right spot.

A background, suitable for the chosen play, may be painted or crayoned upon brown paper. This can be pasted to the inside of the box in order to cover the sides and back, or, if the box is to be used for more than one play, the background may be fastened in with rubber bands.

The box is ready now to be hung about the operator's neck. A rather wide band of cloth is best, because there is danger of a cord cutting into the flesh. Fasten the band to each side of the box leaving just slack enough to bring it to the chest. This will enable the child, hidden by the high framework, to look down and watch the puppets as he manipulates them from below.

GRAND COULEE

(*Continued from page* 13)

phane to look like water. Along the stream have tiny sticks painted silver for transmission towers. Put sand on the ground and mark off canals. Boxes, cut and stuccoed, make the houses on the sides of the gorge.

Make a study of the work of beavers, who also build dams. The Saskatchewan government has employed seventy-five beavers, placing them in streams where their dams will raise water levels and aid in fire prevention.

SOUTH AMERICA

(*Continued from page* 23)

- Explain the process of obtaining the latex from rubber trees, and the process of preparing the substance for shipping. Explain this sentence—"Rubber is a monarch ruling over our activities, comforts and pleasures." List the things you use daily that are made of rubber.
- Discuss coffee production—the necessary climate, soil, cultivation, picking and the process of removing the pulp, drying, removing the hull and skins, and sorting into bags for shipment.

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SCHOOL GARDEN

(*Continued from page* 36)

Zinnia . . . Choose a sunny place. Spade one foot deep. Break up the clods and rake smooth. Sow the seeds ¼-inch deep, covering with fine soil and pressing down firmly. When shoots are about an inch or two high, transplant one foot apart in the row. Give plenty of water, in very rich soil.

Portulaca or Moss Rose . . . Few flowers make such a dazzling display of color in the bright sunshine as a bed of portulacas. For planting, sow the seeds in a sunny place, in rows about one foot apart. Cover the seed with about ⅛-inch of fine soil, pressed down. When shoots are well up, transplant to two inches apart.

Petunia . . . Rich deep crimson, single flowers. Plant in a warm, sunny, open place. Seeds should be covered with about ⅛ to ¼-inch of fine soil, pressed firmly down. Rows should be two feet apart. When shoots are 1 or 2 inches high, transplant to 18 inches apart.

Verbena . . . Cover the seed ⅛-inch deep and press soil down. Transplant about 20 inches apart in rows 2 feet apart. Give full sunshine.

Aster . . . Cover the seed ¼-inch deep. Transplant to 18 inches apart. Asters need full sunshine. Water thoroughly, running the hose on the ground.

Larkspur . . . These are taller flowers that grow 15 to 18 inches high. Cover the seed with about ¼-inch of fine soil pressed firmly down. Transplant to about 1 foot apart in the row.

From the sowing of the seeds or setting of the plants, let the children take full responsibility. Show them how to dig and cultivate, weed and water. They will quickly observe that plants turn toward the sun if sun-loving, and that wilting is nature's way of offering protection to plants when the sun is very hot.

The desire to work among plants and flowers in any manner is always to be encouraged. It fosters a love of the beautiful, an appreciation of growing things, gentleness and kindness, responsibility and faithfulness to duty. And besides developing these desirable attributes, it occupies spare hours satisfactorily, and trains bodies in a healthy, wholesome way.

A sensitive plant in a garden grew,
And the young winds fed it silver dew,
And it opened its fan-like leaves to the light
And closed them beneath the kisses of night.

—Shelley.

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